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# MASTER POWER TECHNOLOGIES

## 2014 South African Data Centre Infrastructure Management Technology Leadership Award


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50 Years of Growth, Innovation & Leadership

# Technology Leadership
# Data Centre Infrastructure Management
# South Africa, 2014

## Background and Company Performance

### Industry Challenges

Data centres are an essential part of modern organisations. These facilities allow companies to ensure their mission-critical operations run in a secure environment, thus guaranteeing business continuity. Worldwide, data loads are continuously increasing and South Africa (SA) is no exception to this trend. The SA data centre market is in its growth stage, and is expected to be growing at a rate of 11.3% annually for the next five years. This growth is driven by companies' shift from a capital expenditure (CAPEX) to an operating expenditure (OPEX) model through outsourcing data centre infrastructure management (DCIM) services to third party centre service providers.

Despite outsourcing being a major driver for the DCIM industry, skills shortage, rising costs of property development and looming carbon emission regulations are some of the key challenges that businesses operating data centres have to continuously deal with in SA. The country lacks skilled labour with the required skills to manage and maintain advanced data centre infrastructures. Subsequently, outsourcing these skills adds to the service cost that is charged to the customers.

With the rise in data load, existing data centres have to be upgraded and new ones have to be established in order to house the organisations' business applications. However, Frost & Sullivan (F&S) research reveals that the high initial cost of constructing a traditional brick-and-mortar data centre is a major concern when considering investing in such facilities. This is exacerbated by the fact that brick-and-mortar data centres are nearly impossible to quickly and cost-effectively rescale in response to changing market conditions.

Finally, the South African government is in a process of introducing a legislation that enforces companies to power their operations with environmentally friendly energy solutions. The carbon tax law, which is expected to come into effect in 2016, forces data centre providers to incorporate renewable energy technologies in their facilities. The cost of powering data centres with renewables will have to be transferred to the end-users who are already adopting OPEX models in a bid to curtail expenses.

### Technology Leverage and Business Impact of Master Power Technologies (MPT)

#### Criterion 1: Commitment to Innovation

MPT is a specialist in power solutions and data centres. Its turnkey solutions range from modular data space solutions, cooling solutions, MV transformers and switchgear, medium voltage, uninterrupted power supply (UPS) and generator systems (gensets) to battery management, automated monitoring, energy management and industrial solar solutions. MPT's solutions are targeted at companies from manufacturing, mining, telecommunications, financial and other sectors where uptime is critical.

To sustain a culture of innovation, MPT has adopted a market driven strategy. This strategy is evident in the company's ability to quickly adapt to market trends, drivers and challenges, and subsequently provide customers with best-in-class, tailored, one-stop solutions – integration of power solutions, with scalable data centres, cooling and remote monitoring systems. These data centres are strategically designed and built in modular units of 50 square metres ($m^2$) that can be scaled up to any desired size.

### Criterion 2: Commercialisation Success

The adoption of an OPEX-based model by businesses, such as telecommunications companies, is the key driver for the commercialisation of MPT's turnkey solutions. To curb CAPEX, many companies choose to focus on their core activities and outsource less mission-critical operations, which include data centre management. The OPEX focused model creates a demand for MPT's game-changing solutions. To take its comprehensive solutions to the market, MPT has devised a direct marketing strategy, targeting banks, government institutions and telecommunications companies, as they are the largest data centre users.

Vodacom, the largest mobile operator by numbers in Africa, was the first customer to employ MPT's all-inclusive data centres. Consequently, Vodacom achieved a quicker rollout of its market penetration strategy, taking its facilities to remote locations and connecting the unconnected. MTN, a multinational mobile telecommunications company, followed suit. It now uses MPT's data centres in most of its remote operations in Africa.

### Criterion 3: Application Diversity

MPT's unsurpassed technical expertise built in a span of 15 years enables the company to rapidly respond to external challenges and develop technologies that serve multiple applications. This agility combined with a strong technical know-how has allowed the company to remotely monitor its data centres while ensuring that the UPS systems provide clean and reliable power to these data centres. Since UPS run off battery power, they provide clean power to data centres; therefore, MPT ensures that these batteries are functioning optimally to provide the required power even in times of crisis.

To ensure this reliability, the company has developed a unique monitoring system called BattSure (Battery Monitoring System) to enable customers to maintain control over the UPS system and extract full value from it. The BattSure collects and stores the key electrical parameters (current, voltage and temperature) of each battery and calculates their functional status in comparison to past performance as well as the manufacturer's specifications. The BattSure is designed to continually monitor the status of UPS batteries to ensure they are functioning optimally, warning customers as soon as one or more batteries are faulty, thereby minimising the damage that could be caused to other cells. The stored battery data enables the end-user to view battery health and performance trends over any given period. The additional benefit is MPT's remote observation, which allows businesses to have their batteries constantly monitored by offsite experts who can initiate any repair or replacement before the actual occurrence of the problem.

### Criterion 4: Customer Acquisition

In the digital technology world data loads are constantly increasing. Hence, existing data centres have to be upgraded and new ones have to be built frequently. Brick and mortar data centre are becoming less viable alternatives. As a result, MPT has developed cost-effective, energy efficient and modular data centres. These flexible solutions enable customers to purchase only the required space without having to invest in power and building the infrastructure, which would require large initial capital investment. MPT's turnkey solution is novel in the sense that it acts as a quick 'plug and play' solution; all that customers need to do is install their equipment, servers and other similar devices. MPT also offers the option of installing the customer's equipment in the data centre before the solution is actually sent to the site.

In addition, MPT data centres can be configured to suit the immediate equipment requirements, as additional modules can easily be added or removed in line with the changing equipment demands, minimising the capital outlay, which would have been required when upgrading a conventional data centre. The layout of MPT data centres allow for ease of accessibility and a simplified service and maintenance to be carried out.

### Criterion 5: Growth Potential

F&S has identified a mega trend of connecting the unconnected. The growing demand for connectivity by consumers and businesses has poised Africa to achieve 90% mobile penetration by 2020. The need to develop Africa's telecommunication infrastructure creates significant investment opportunities for providers of data centres in order to accelerate services such as mobile banking, e-government and e-learning. MPT's all-inclusive data centres enable businesses and government institutions to extend their services to remote areas, leapfrogging the development of infrastructure and connecting the unconnected.

Furthermore, Africa has some of the most abundant renewable energy resources on the planet, which puts the continent in a good position to use 'green' energy that is sustainable and environmentally friendly. To leverage the mega trend of using renewable energy, MPT has developed a range of photovoltaic (PV) solar solutions, which are both grid-connected and off-grid solutions, to complement its UPS systems. The grid connected PV solutions synchronise with the utility line, enabling customers to power their data centres with clean, cost-competitive energy during the day and switch to the grid power during the evening. However, off-grid PV solutions integrate with the diesel gensets, delivering reliable power to remote operations.

### Criterion 6: Human Capital

MPT forms strategic alliances with internationally renowned companies to enhance its expertise and obtain access to products that complement its solutions. The company sources its engines from MTU Friedrichshafen, a Germany based company that has been manufacturing diesel engines for more than 100 years. As a result of such alliances, MPT is amongst the first companies in SA to offer industrial biogas powered gensets, which enable customers to use environmentally friendly solutions to power their systems.

Additionally, MPT are the official dealer for the FG Wilson range of diesel generator sets for Southern Africa, including Mozambique, Zambia and Zimbabwe. MPT have distribution networks for FG Wilson product sales and support set up across the whole region. FG Wilson is manufactured by Caterpillar and is the world's largest diesel generator manufacturer allowing MPT to bring a globally recognised product to its customers that are manufactured to all IEC and ISO standards which are developed and tested in some of the world's most advanced facilities. FG Wilson provides a high quality premium product at a reasonable price point offering the best value in the market.

Furthermore, the research and development (R&D) team at MPT constantly evaluates ways and means of providing customers with value added solutions and ensures that the company stays abreast with the latest technology. The R&D team includes highly skilled personnel with multi-disciplinary expertise that spans across embedded Linux programming, electronic schematic design and electronic board layout, which facilitates development of technologies such as BMS, BattSure and Universal Controls.

## Conclusion

MPT has identified the trends in the DCIM market and have used them to provide customers with all-inclusive tailor-made data centre solutions. In anticipating future customer needs, the company has effectively adopted a market driven strategy, forming strategic alliances with multinational companies to jointly use global best practices to develop products that meet the local market needs. MPT is, therefore, the deserving recipient of the Frost & Sullivan 2014 Technology Leadership Award in the South African Data Centre Infrastructure Management Industry.

# Significance of Technology Leadership

Technology-rich companies with strong commercialization strategies benefit from the increased demand for high-quality, technologically innovative products. Those products help shape the brand, leading to a strong differentiated market position. The intersection of demand, brand, and competitive positioning is explored further below.

# Understanding Technology Leadership

Technology Leadership recognizes companies that lead the development and successful introduction of high-tech solutions to customers' most pressing needs, altering the industry or business landscape in the process. These companies shape the future of technology and its uses. Ultimately, success is measured by the degree to which a technology is leveraged, and the impact that technology has on growing the business.

## Key Benchmarking Criteria

For the Technology Leadership Award, we evaluated two key factors—Technology Leverage and Business Impact—according to the criteria identified below.

### Technology Leverage

Criterion 1: Commitment to Innovation
Criterion 2: Commitment to Creativity
Criterion 3: Technology Incubation
Criterion 4: Commercialization Success
Criterion 5: Application Diversity

### Business Impact

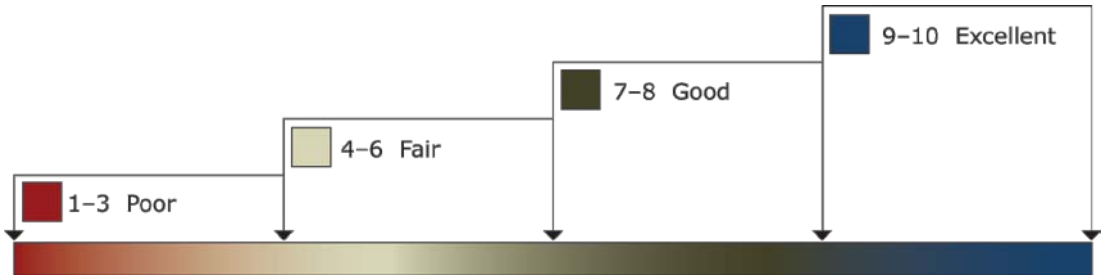
Criterion 1: Financial Performance
Criterion 2: Customer Acquisition
Criterion 3: Operational Efficiency
Criterion 4: Growth Potential
Criterion 5: Human Capital

# Best Practice Award Analysis for Master Power Technologies

## Decision Support Scorecard

To support its evaluation of best practices across multiple business performance categories, Frost & Sullivan employs a customized Decision Support Scorecard. This tool allows our research and consulting teams to objectively analyse performance, according to the key benchmarking criteria listed in the previous section, and to assign ratings on that basis. The tool follows a 10-point scale that allows for nuances in performance evaluation; ratings guidelines are illustrated below.

### Ratings Guidelines




The Decision Support Scorecard is organized by Technology Leverage and Business Impact (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criteria are provided beneath the scorecard). The research team confirms the veracity of this weighted scorecard through sensitivity analysis, which confirms that small changes to the ratings for a specific criterion do not lead to a significant change in the overall relative rankings of the companies.

The results of this analysis are shown below. To remain unbiased and to protect the interests of all organizations reviewed, we have chosen to refer to the other key players in as Company2 and Company3.

### Decision Support Scorecard for Technology Leadership Award (Illustrative)

| *Measurement of 1–10 (1 = poor; 10 = excellent)* | | | |
|---|---|---|---|
| Technology Leadership | Technology Leverage | Business Impact | **Average Rating** |
| | | | |
| Master Power Technologies | 9 | 9 | 9.0 |
| Competitor2 | 7.5 | 7.5 | 7.5 |
| Competitor3 | 6 | 7 | 6.5 |

## Technology Leverage

### Criterion 1: Commitment to Innovation

Requirement: Conscious, on-going development of an organization culture that supports the pursuit of groundbreaking ideas through the leverage of technology

### Criterion 2: Commitment to Creativity

Requirement: Employees rewarded for pushing the limits of form and function, by integrating the latest technologies to enhance products

### Criterion 3: Technology Incubation

Requirement: structured process with adequate investment to incubate new technologies developed internally or through strategic partnerships

### Criterion 4: Commercialization Success

Requirement: A proven track record of successfully commercializing new technologies, by enabling new products and/or through licensing strategies

### Criterion 5: Application Diversity

Requirement: The development of technologies that serve multiple products, multiple applications, and multiple user environments

## Business Impact

### Criterion 1: Financial Performance

Requirement: Strong overall financial performance in terms of revenues, revenue growth, operating margin and other key financial metrics

### Criterion 2: Customer Acquisition

Requirement: Overall technology strength enables acquisition of new customers, even as it enhances retention of current customers

### Criterion 3: Operational Efficiency

Requirement: Staff is able to perform assigned tasks productively, quickly, and to a high quality standard

### Criterion 4: Growth Potential

Requirements: Technology focus strengthens brand, reinforces customer loyalty and enhances growth potential

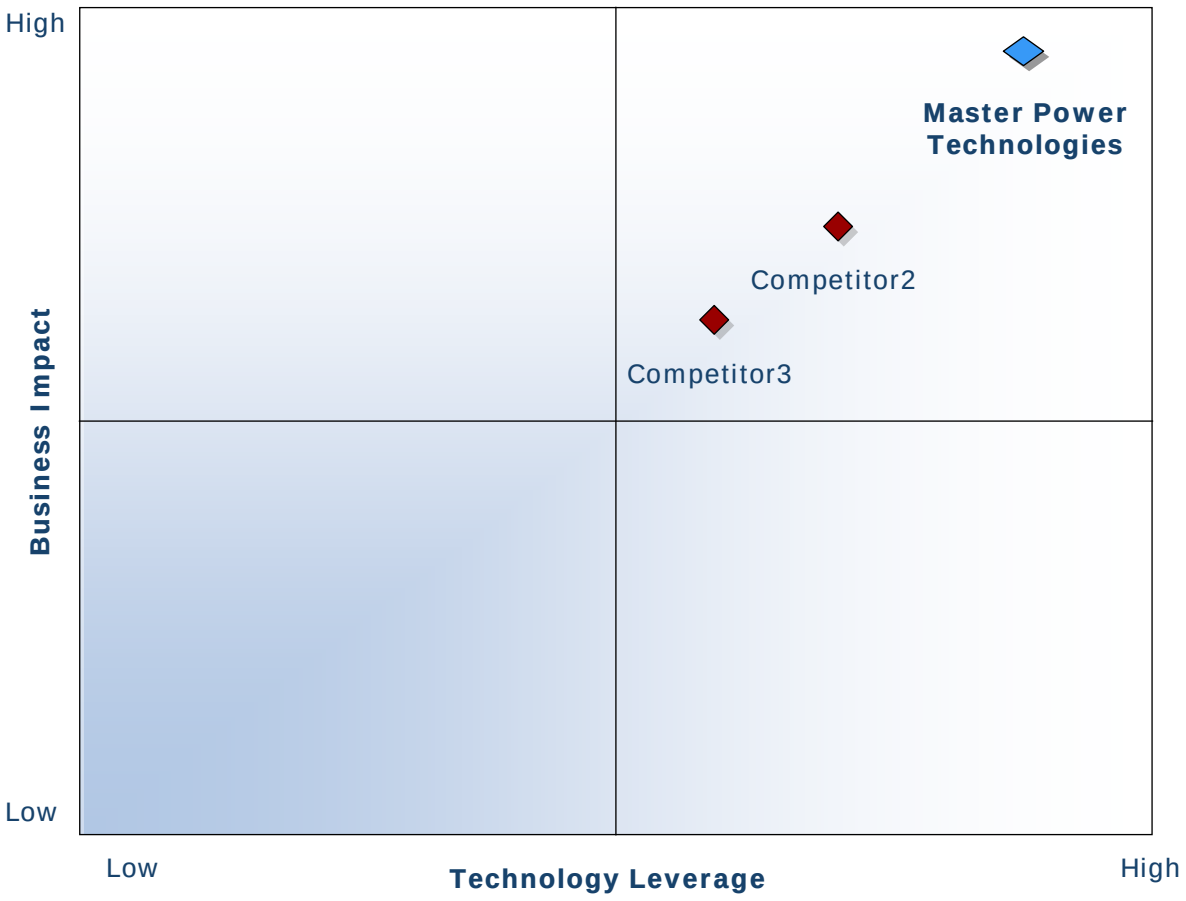
### Criterion 5: Human Capital

Requirement: Company culture is characterized by a strong commitment to customer impact through technology leverage, which in turn enhances employee morale and retention

## Decision Support Matrix

Once all companies have been evaluated according to the Decision Support Scorecard, analysts can then position the candidates on the matrix shown below, enabling them to visualize which companies are truly breakthrough and which ones are not yet operating at best-in-class levels.

**Decision Support Matrix for Technology Leadership Award (Illustrative)**



# The Intersection between 360-Degree Research and Best Practices Awards

## Research Methodology

**360-Degree Research: Seeing Order in the Chaos**


Frost & Sullivan's 360-degree research methodology represents the analytical rigor of our research process. It offers a 360-degree-view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often, companies make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry players and for identifying those performing at best-in-class levels.

# Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Our awards team follows a 10-step process (illustrated below) to evaluate award candidates and assess their fit with our best practice criteria. The reputation and integrity of our awards process are based on close adherence to this process.

| | STEP | OBJECTIVE | KEY ACTIVITIES | OUTPUT |
|---|---|---|---|---|
| 1 | **Monitor, target, and screen** | Identify award recipient candidates from around the globe | Conduct in-depth industry research<br>Identify emerging sectors<br>Scan multiple geographies | Pipeline of candidates who potentially meet all best-practice criteria |
| 2 | **Perform 360-degree research** | Perform comprehensive, 360-degree research on all candidates in the pipeline | Interview thought leaders and industry practitioners<br>Assess candidates' fit with best-practice criteria<br>Rank all candidates | Matrix positioning all candidates' performance relative to one another |
| 3 | **Invite thought leadership in best practices** | Perform in-depth examination of all candidates | Confirm best-practice criteria<br>Examine eligibility of all candidates<br>Identify any information gaps | Detailed profiles of all ranked candidates |
| 4 | **Initiate research director review** | Conduct an unbiased evaluation of all candidate profiles | Brainstorm ranking options<br>Invite multiple perspectives on candidates' performance<br>Update candidate profiles | Final prioritization of all eligible candidates and companion best-practice positioning paper |
| 5 | **Assemble panel of industry experts** | Present findings to an expert panel of industry thought leaders | Share findings<br>Strengthen cases for candidate eligibility<br>Prioritize candidates | Refined list of prioritized award candidates |
| 6 | **Conduct global industry review** | Build consensus on award candidates' eligibility | Hold global team meeting to review all candidates<br>Pressure-test fit with criteria<br>Confirm inclusion of all eligible candidates | Final list of eligible award candidates, representing success stories worldwide |
| 7 | **Perform quality check** | Develop official award consideration materials | Perform final performance benchmarking activities<br>Write nominations<br>Perform quality review | High-quality, accurate, and creative presentation of nominees' successes |
| 8 | **Reconnect with panel of industry experts** | Finalize the selection of the best-practice award recipient | Review analysis with panel<br>Build consensus<br>Select winner | Decision on which company performs best against all best-practice criteria |
| 9 | **Communicate recognition** | Inform award recipient of award recognition | Present award to the CEO<br>Inspire the organization for continued success<br>Celebrate the recipient's performance | Announcement of award and plan for how recipient can use the award to enhance the brand |
| 10 | **Take strategic action** | Share award news with stakeholders and customers | Coordinate media outreach<br>Design a marketing plan<br>Assess award's role in future strategic planning | Widespread awareness of recipient's award status among investors, media personnel, and employees |

# About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best in class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation and implementation of powerful growth strategies. Frost & Sullivan leverages almost 50 years of experience in partnering with Global 1000 companies, emerging businesses and the investment community from 31 offices on six continents. To join our Growth Partnership, please visit http://www.frost.com.