



Technology Trend Analysis

Ceramics in Gas Turbines

Case Study

Technology Trend Analysis[1/2]

Client	A leading provider of Gas Turbines
Industry	Gas Turbines
Products	Gas Turbines, large-bore diesel engines and turbo machinery for marine and stationary applications

Engagement Scope

1

Current Start-of-Art

- Current state-of-the-technology vis-à-vis ceramic parts already being used in gas turbines during operation
- Key developments with regards to new ceramic parts, respective materials for gas turbines
- OEMs that have already adopted ceramic parts for use in gas turbines
- Suppliers which develop and provide ceramic parts to OEMs

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Adoption Drivers & Restraints

- Detailed analysis of benefits and drawbacks vis-à-vis each of the identified ceramic parts that are currently in operation in gas turbines
- Identification of key factors based on which favorability of ceramic parts is to be judged
- Comprehensive details of all the test and trial outcomes corresponding to each ceramic part that is in operation in gas turbines

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Ecosystem & Value Chain

- Ceramic matrix composite manufacturers developing formulations for part manufacturers & OEMs
- Supplier mapping vis-à-vis each of the identified ceramic part currently in operation in gas turbines
- Ceramic matrix composite suppliers for producing parts for gas turbines

Context

- Client is looking to investigate into the potency of use of ceramic materials in gas turbines and wants to gain insights on Ceramic matrix composites

Key Business Questions

- Who are the OEMs (gas turbine manufacturers) using ceramic materials for producing gas turbines?
- What parts of gas turbines are being produced/developed from ceramic materials? What materials are these ceramics replacing in the gas turbines?
- Who are the key suppliers of ceramic parts to OEMs for production of gas turbines?
- What type of ceramic materials are being used to produce respective parts of gas turbines?
- What temperatures are ceramic parts already in use subjected to during operation in gas turbines?
- What is the overall field experience of using ceramic material based gas turbine parts?

Technology Trend Analysis[2/2]

Research Methodology

Secondary Research

- Conducted desk research to understand technologies of Ceramics and its composites used in Gas Turbines, manufacturers/suppliers of these components, drivers, market barriers impacting the use of Ceramics in turbines.
- Referred paid databases and analyzed patents related to ceramics in gas turbines.

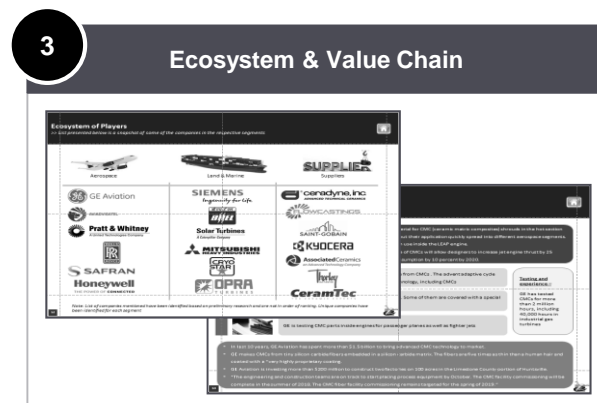
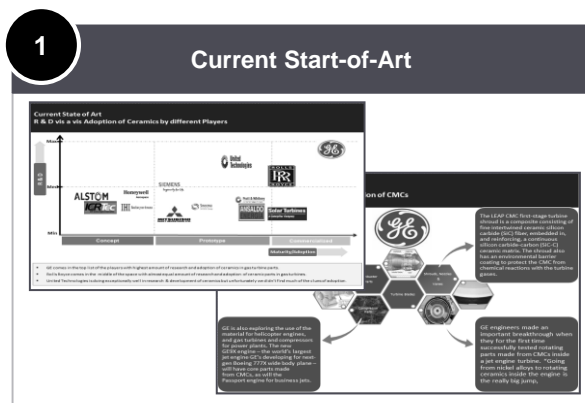
Primary Research

- 35+ Telephonic interviews with manufacturers, suppliers, distributors industry experts etc.

Benefits to Client

- Based on the study and recommendations, the client had a better outlook on the potency of use of ceramic materials in gas turbines .
- The study enabled the client to understand the current state-of-art in Ceramics used in Gas Turbines, its adoption drivers and Restraints, Ecosystem & Value Chain.
- The client also was able to determine which were the best potential segments/areas in the Gas Turbines where such ceramics can be used.

Sample Analysis



Thank you

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