Business Intelligence in the Middle of the Ocean

RoyalCaribbean
INTERNATIONAL

client

Royal Caribbean Cruise Ltd.
Travel
Atlanta, GA USA
60,000 employees

solution

Retail Business Intelligence
Cruise Ship Analytics

technology

Oracle Business Intelligence
Hyperion
PeopleSoft
Siebel
JD Edwards
Oracle Databases

Royal Caribbean Cruise Lines Achieves Onboard Analytics That Maximize Performance of In-Voyage Revenue

About Royal Caribbean Cruise Ltd.
Royal Caribbean Cruises Ltd. is the world's second largest cruise vacation company that operates Royal Caribbean International, Celebrity Cruises, Pullmantur Cruises, Azamara Cruises, and CDF Croisières de France. The company currently has 40 ships in service that call on approximately 400 worldwide destinations.

The Royal Caribbean International brand provides various itineraries and cruise lengths with options for onboard dining, entertainment, and other onboard activities primarily for the contemporary segment. It offers surf simulators, water parks, ice skating rinks, rock climbing walls, and shore excursions at each port of call, as well as boulevards with shopping, dining, and entertainment venues.

Royal Caribbean Cruises Ltd. (RCCL) was founded in 1968 and is headquartered in Miami, Florida. RCCL has over 60,000 employees and $7.5 billion in annual revenue (2011).

Customer Need
There were two main business drivers for Royal Caribbean:

1. Increase access to data
2. Better manage the business

Key personnel were provided limited ability to make actionable decisions to affect onboard revenue during a voyage. There was no visibility to detailed guest level transactions. Data resided onboard each individual vessel without a consolidated view of the fleet. Most importantly, because of existing architecture, the summary-level voyage information could only be collected at the end of each voyage. The company did not know how well a particular voyage was performing against targets until they returned to port and all the passengers departed. This was too late to affect change to in-voyage revenue.

KPI PARTNERS

Top executives sought the ability to better manage the business and grow voyage revenue by better understanding relationships between guest's demographics and their spending patterns. For example, on a given voyage, what country are our passengers from and, based on historical data, what are they most likely to consume in the form of food & beverage, on-board activities and on-shore excursions.

The management teams needed a tool to quickly identify revenue performance trends during these 3-10 day voyages and make associated changes to drive revenue instead of just reporting on it.

Solution Detail

Technology consultancy KPI Partners partnered with Royal Caribbean Cruise Lines on a unique business intelligence solution. Through the use of state-of-the-art business intelligence technology, Royal Caribbean can now bring together various disparate data sources to help optimize the vacation experience for travelers on all of their ships.

Shore-side managers and shipboard users access dashboards on a daily basis to track usage of amenities such as their onboard spas and shore excursions as well as revenue streams for various food and beverage outlets. By profiling near real-time voyage analytics against historical data and dimensions such as age and country of origin, Royal Caribbean can optimize promotions that best appeal to the passengers.

The complex project was a multi-year effort that started with a proof-of-concept developed using the 10g version of the Oracle Business Intelligence Enterprise Edition (OBIEE) on a single ship within the Royal Caribbean fleet. After multiple design & development iterations, the production implementation was a custom Cruise Ship Analytics solution deployed using

the upgraded 11g version of OBIEE. All 22 ships within the Royal Caribbean International-branded fleet now participate while at sea and distribute data via satellite to on-shore servers for analysis.

Challenges

Because of the grand scale of this effort, several notable challenges were encountered and overcome. The biggest challenge was determining how to create a high performance analytics solution while ships are at sea. Data transfer rates are limited and user adoption would have stalled if people were forced to wait for screens to paint with data FOR their dashboards.

Considerations were made, and best practices were developed, for scalability, system upgrades, and performance. The capabilities of the Oracle databases were also utilized to their fullest potential; Data was partitioned, indexes were created, and summary objects were built. Because of the optimizations, dashboards will paint within 2-3 seconds on average.

Cruise Ship Analytics - At A Glance

The following list encompasses the high-level areas in which shipboard and shore-side management teams can now conduct near real-time analysis via Royal Caribbean's Cruise Ship Analytics solution.

- Shipboard Overview
- Shore-side Overview
- Spa
- Beverage
- Shore Excursions
- Specialty Dining
- Gift Shop
- Photography
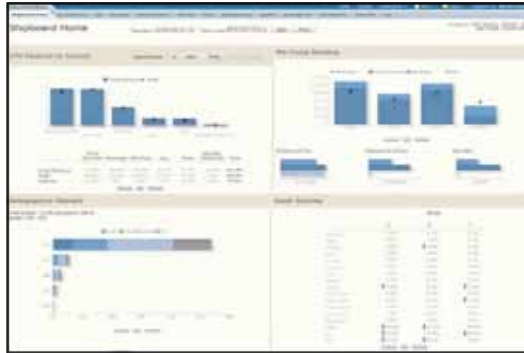
Why Was Oracle Chosen?

In an effort to stay consistent with the very large Oracle footprint that exists at Royal Caribbean, Oracle BI was selected as the enterprise-standard reporting application. Licenses for Oracle BI were purchased as part of an upgrade with the Hyperion Suite of products, but were originally shelved because a lack of expertise existed to deeply the BI tool. RCCL partnered with a credible and experienced systems implementation partner who could provide strategic direction on the best practices required for deploying a scalable enterprise-reporting platform.

When weighing the features and benefits of Oracle's business intelligence suite versus those of other vendors, the ability to combine data from multiple sources proved to be an attractive benefit. Royal Caribbean has several different types of front-end transactional and back office systems that needed to be integrated in order to provide a valuable central source of reporting truth.

Oracle BI also offered an intuitive, easy-to-use, interface. A platform that required minimal training was very important due to the geographically disperse and culturally diverse user base that would be utilizing the system.

Why Was KPI Partners Chosen?

As the most experienced systems implementation partner focused on Oracle BI & EPM, KPI partners was chosen because of their expertise within Oracle BI and related technology. KPI Partners has successfully implemented the most complex deployments of Oracle BI in the world and the project at Royal Caribbean required in-depth expertise to provide the high-level of performance required in a satellite-driven data exchange environment.

KPI Partners offered functional expertise in the travel and hospitality industry. KPI also offered global delivery capabilities that leverage a blended-shore model with a combination of high-value on-site experts and lower cost offshore resources.

Duration

The effort was launched in mid-2009 with a KPI Partners Vision Workshop that brought together all the key stakeholders within Royal Caribbean's Technology Department, Royal Caribbean's Business Sponsors, functional & subject matter experts, and the business intelligence project team. In December 2009, the original pilot version of the Cruise Ship Analytics solution was introduced to 'Oasis of the Seas', the largest cruise ship in the industry.

After a comprehensive and successful 12-month pilot period that involved the inclusion of four other cruise ships, an additional round of capital funding was approved to expand the project beyond the pilot.

In January 2012, the production version of Cruise Ship Analytics was launched across all 22 ships in the Royal Caribbean International-branded fleet.

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P A R T N E R S

Solution Components:
Business Intelligence Components
- Oracle Business Intelligence Enterprise Edition 11.1.1.5
- Enterprise Data Warehouse - Oracle Database 11g R2

Other Platform Components
- Operating System: Red Hat Enterprise 5
- Authentication: LDAP
- Total Number of Users: 150+

Educational Components
- Custom OBIEE training program via KPI University

Data Sources
- Onboard Point-of-Sale Systems
- Pre-Cruise Reservation Systems (Guest Data)
- On-Shore Excursion Systems (Reservations & Sales)
- Financial Planning System (Revenue Targets)

Oracle Footprint
- Hyperion
- PeopleSoft
- Siebel
- JD Edwards
- Oracle Databases
- Essbase

Future Plans
The company plans to introduce three more ships to the Royal Caribbean International brand by the end of 2015, to increase to a capacity of approximately 100,00 berths. Cruise Ship Analytics will be deployed to each of these new vessels.

In addition, Royal Caribbean plans to expand the Cruise Ship Analytics solution across the rest of the company's brands: Celebrity Cruises, Pullmantur Cruises, Azamara Cruises, and CDF Croisières de France.

By the end of 2015, Cruise Ship Analytics, powered by Oracle BI, will be operational on all 43 ships under the Royal Caribbean Cruise Ltd. umbrella.

Compatibility with mobile devices, such as the iPad and smart phones, is already available with certain restrictions due to security. The business would like to expand on this capability and make mobile usage more pervasive.

Due to the high rate of user adoption since the January 2012 launch, enhancement requests for additional functionality have been rolling-in regularly from the business. The Cruise Ship Analytics solution continues to evolve. Royal Caribbean is already planning for the inclusion of new executive-level summary dashboards and month-to-month financial reporting by vessel.

Results:
Cruise Ship Analytics Maximizes Royal Caribbean's Voyage Revenue
Royal Caribbean immediately reaped the benefits of a dazzling global deployment of Cruise Ship Analytics across 22 vessels and over 400 ports of call.

Success Criteria
Royal Caribbean required a single consolidated global view of their onboard and shore-based revenue performance as well as detailed revenue analysis for every ship within the fleet and for every voyage. A successful implementation would facilitate the ability to refresh business intelligence data multiple times per day and accommodate 24 x 7 user access.

High-level performance and data accuracy were critical success criteria. Dashboards needed to be light and paint within a few seconds using satellite data connections.

Accomplishments

Royal Caribbean found over time that the two major categories that really affect spend-patterns are nationality and age. Reports were generated in this area and provided great insight. The industry-related logic and integration of data sets to make this possible was extremely complex.

Key project accomplishments:

- An enterprise data warehouse was created and populated with data.
- Data was combined from disparate sources to provide a comprehensive view of each ship's performance.
- Leveraged LDAP for authentication.
- The solution was rolled-out 22 ships located around the world with minimal effort.
- Food & beverage managers, bar managers, hotel directors, and marketing managers were trained in a timely fashion.

- Management teams were provided with near real-time views of how each ship is measuring against their voyage metrics.
- Provided business intelligence to allow shipboard management to modify onboard activities to achieve desired results through demographically targeted promotions.

Quantitative Results
Return-on-Investment (ROI)

It is still early to quantify the impact of the Cruise Ship Analytics solution through a systematic measure, Royal Caribbean is already experiencing anecdotal return-on-investment (ROI) with their business intelligence solution because they are able to modify onboard marketing activities to specific demographics to maximize voyage revenue.

For example, if beverage revenue is lacking on a particular voyage, management can now identify this deficiency quickly and tailor promotions around a particular brand of beer (Molson) that has historically appealed a segment of guests on-board based on their country of origin (Canada).

There has also been a specific case of a Royal Caribbean vessel that sails out of the South American region that has never made their revenue target with the onboard spa. Using the information within the Cruise Ship Analytics solution, especially the demographic breakdown, the management teams were able to figure out what the profile was of those spending at the spa and to whom they needed to get marketing information and what specific products and services they needed to market. Since the launch of the Cruise Ship Analytics solution, the South American vessel has now been able to consistently achieve their revenue targets.

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Lead Time

Report lead-time has been reduced from up to 14 days to being refreshed 4-times per day (every 6 hours).

Adoption

User adoption within Royal Caribbean's Shipboard and Shore-side Management groups has been very high. The solution currently supports over 150 users who are experiencing response times ranging from 0-30 seconds. An additional 150 users are scheduled to be added.

"The pattern that revenue builds during a voyage is certainly not linear. One of the important things was to show the expected pattern that revenue would have day-over-day and let the user see where we are relative to that pattern."

- Richard Paley, Royal Caribbean

About KPI

KPI Partners provides strategic guidance and technology systems for clients wishing to solve their most complex and interesting business challenges involving cloud applications and big data. KPI works with both corporate technology departments and corporate business units to develop value-added solutions, not just new technology deployments.