

Customer Case Study

# Sinopec International Prospecting Company (SIPC)

## Best-of-breed Service Platform and Service Bus Helps Deploy Overseas Exploration and Development Integrated Information Systems

**Solution:**  
SIPC Overseas Exploration and Production Integration Information Systems (OEPIIS)

**Product:**  
BEA AquaLogic® Data Services Platform  
BEA AquaLogic® Service Bus

**Industry:**  
Energy

**Country:**  
China

### Business Challenge

As a wholly-owned subsidiary of Sinopec Corp, Sinopec International Prospecting Company (SIPC) is responsible for managing all overseas branches of Sinopec With IT systems distributed globally and in order to support its overseas business development, SIPC urgently needed to set up a “loosely coupled” service architecture to cope with the increasing number of business systems and data that enable business functions and data to be shared across systems. The service architecture also needed to ensure direct reuse of existing business functions and data when SIPC introduces new business systems without the need to revamp old systems.

### Solution

SIPC chose BEA as their strategic service-oriented architecture (SOA) partner thanks to the advanced SOA methodology that BEA recommended which included BEA AquaLogic Data Services Platform and AquaLogic Service Bus to implement its Overseas Exploration and Production Integrated Information Systems (OEPIIS).

BEA's enterprise service bus enabled SIPC to integrate its exploration, production, business and asset management systems, to develop a service sharing architecture. The company also centralised all data collection, storage, utilisation and provision procedures and created data sharing services through the data service platform. This allowed SIPC to form an initial SOA system to further help their global market development.

### Results

Through the initial SOA-based IT architecture, SIPC's OEPIIS was successfully put in place, enabling standard data sharing among exploration, development and major business systems.

The solution also improved the control of data access security, while different systems can be flexibly put into operation through the enterprise service bus, to cope with the ever-changing demands of business development. It also enabled easy integration with other systems in the future, allowing SIPC to build up a complete security management system.

Moreover, systems could be implemented in a much simpler way, while data service could be carried out through simple configuration, with no more code being required to be written for database update. In addition, the new architecture provided connections for different systems, supporting unified management of business services and data services.

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*“We chose BEA AquaLogic Data Services Platform and AquaLogic Service Bus to centralise the data access control in the headquarters. This allowed the system to provide a quality service to different branches.”*

*The Director of SIPC*

#### Overview

With China continually requiring oil to help feed the ever increasing demand of industry as it continues its spectacular growth, prospecting overseas has become an important strategy as its oil industry develops the international market to obtain global oil resources. Sinopec International Prospecting Company (SIPC), a wholly-owned subsidiary of Sinopec Corp plays a strategic, integrated role in operating overseas crude oil and natural gas exploration, production and investment projects. SIPC conducts a variety of oil and gas exploration and production projects in more than 20 countries and regions, including Southeast Asia, the Middle East, Africa, South America, Russia, Central Asia, Australia and Canada. However, whilst enjoying rapid growth SIPC has faced many challenges particularly with its IT systems. SIPC decided to centralise all its IT management processes, to enable it to better manage exploration, development and shaft data in one go. This would not only increase the ease of management, but also allowed faster creation of data statistic models, improving the efficiency of statistical analysis and optimizing data access control.

#### Customer Brief

Established in January 2001, as a wholly-owned subsidiary of Sinopec Corp, SIPC is responsible for operating all Sinopec's overseas projects related to crude oil and natural gas exploration, production and investment. It is also the only patented subsidiary of Sinopec for operating upstream overseas investment projects.

#### Business Challenge

Prospecting overseas has become an important strategy for China's oil industry to develop the international market and obtain global oil resources. However, the principle is not as simple as setting up facilities and sending staff overseas. It is also important that every player can manage their overseas oil fields, improve exploration accuracy and reduce mining costs.

In order to develop overseas markets, SIPC opened many overseas branches which have achieved great success in overseas oil and gas exploration as well as production in recent years.

To date, SIPC has successfully been involved in numerous exploration and production projects in more than 20 countries and regions, acquiring the knowledge and qualifications to compete for overseas oil and gas resources.

However, while SIPC was accelerating the pace of its global expansion, it faced a great challenge with its IT infrastructure. SIPC had wished to centralise the management and control of all business, but its existing IT systems were distributed in tens of production departments and branches, and the data was spread between SIPC's headquarters and all its branches. This created obstacles for data statistics, made operations complicated and caused data access security problems.

By centralising all management processes, SIPC would be able to manage exploration, development and shaft data in one go, which not only increased the ease of management, but also allowed faster creation of data statistic models, improving the efficiency of statistical analysis and optimizing data access control.

SIPC also planned to step up its business presence by opening new branches and forming new partnerships. As a result, its IT infrastructure had to be adjusted frequently to cope with changing business needs. The company also needed to increase the speed in setting up business systems to cater for diversifying overseas business models. Therefore, flexibility and control became essential elements when deploying IT systems.

In 2005, SIPC put forward the ideal of building a new business information solution which would be based on an integrated exploration and production operation database. The new system would cover all management functions of SIPC's overseas exploration and production projects. As an integral part of this initiative, SIPC kicked off the SIPC Overseas Exploration and Production Integrated Information system project in January 2006.

### [Solution](#)

SIPC decided that the Overseas Exploration and Production Integrated Information System should be based on SOA, an open architecture which can build separate function units in enterprise application systems into reusable and standard-based services, which can be combined and reused quickly to cope with the fast changing business. As a unified architecture, SOA can provide the technology foundation for innovation, agility and optimisation to the business.

Owing to the large amount of existing systems that SIPC already had, new integrated systems were required to reuse existing functions under different overseas business models, without the need to revamp old systems.

As the exploration, development, shaft and production systems required frequent collaboration, SIPC needed to put in place a unified and open architecture that would integrate with its SAP enterprise resources planning system. In other words, the company needed a standardised management approach.

SOA is an IT strategy which can consolidate distributed functions of enterprise applications based on standard interoperation services. It allows IT departments to quickly assemble and reuse these services to fulfil their business needs.

SIPC believed that by adopting an open SOA architecture, they could standardise the business services and data services applications by enabling the different programming languages used by different system developers to communicate with each other. SIPC also believed it could better manage the business services offered by the different systems.

SIPC selected SOA with JAVA to develop the underlying platform. It built up the overall system architecture first, before taking steps to add in new business systems, and enhancing the integration among different layers based on a tiered design.

Based on Sinopec's exploration and production database, SIPC's OEPIIS focused on the special aspects of SIPC's business, and incorporated widely adopted international petroleum database standards and specifications for system adjustment and expansion. The data model design solution not only complied to the requirements for overseas business operation, but also conformed to the particular business needs of Sinopec Corp.

After evaluating various technologies and products provided by many vendors, SIPC selected BEA's SOA solution to construct its SIPC Overseas Exploration and Production Integrated Information Systems. BEA AquaLogic Data Services Platform and AquaLogic Service Bus were chosen to realise data integration, management and sharing between major business systems. By centralising data access control in the headquarters, the system would provide a quality service to different branches.

BEA AquaLogic Service Bus, the latest product of BEA AquaLogic family, would provide the service-oriented infrastructure that can promote IT agility and the ability to adjust to business. It integrates service routing and transformational capabilities with robust service management in a single product seamlessly, accelerating SOA configuration, implementing and simplifying the management of shared services.

The value of BEA AquaLogic Service Bus was well demonstrated in two areas in the SPIC OEPIIS. First, Java, .Net and other packet applications could all be organised and coordinated by BEA AquaLogic Service Bus because components reuse was considered a key element from the start of the project. In the first phase of the project, components reuse was introduced into the shaft, exploration and production operations, while the production, SAP and Hyperion systems were integrated the following year.

*“BEA's abundant experience in SOA implementation and products met the needs of SIPC. The deployment of the OEPIIS has also set a solid foundation for the future development of SIPC.”*

*The director of SIPC*

Secondly, as a collaborative system used all over the world, the SPIC OEPIIS required collaboration among local applications as well as remote applications. All these could be implemented through BEA AquaLogic Service Bus.

As a core element of the solution, BEA AquaLogic Data Services Platform provided a unified view of all data sources within the enterprise. It allowed the data service to become a single and consistent information access point and made data access, integration and updates easier and more consistent. It also simplified application development.

SIPC also integrated separate database systems into an unified model and fulfilled the “loosely coupled” requirements among applications and databases. Data access was turned into a “service”, meeting the specific requirement in data mining. In addition, BEA AquaLogic Data Service Platform provided the data service layer which is unique for the data mining process of oil systems. It also provided an optimal load adding service by implementing a flexible data model.

## Results

As a result of the joint efforts by different parties, SPIC’s OEPIIS was developed with an initial SOA-based IT architecture being successfully developed.

For SIPC, the advantage of adopting an SOA-based IT architecture was that it could standardise the management of all exploration and production data—the core information for the company’s operation. This improved the security control of data access, while different systems could be flexibly put into operation through ESB. It not only enabled SPIC to cope with the ever-changing business requirements, but also enabled easy integration with other systems in future, allowing the company to build up a complete security management system.

For example, in an SOA architecture, wherever the business data and business components were deployed, a user would be able to view them all as long as he was given the accessibility. When an oil deposit expert needs to view an earthquake report, the request will be packaged as a “service” under SOA. Given the accessibility and interface to this service, the expert can immediately register to view and manage the relevant information through Internet from a certain application in the headquarters.

Moreover, the system implementation process was simplified, while data services could be carried out through simple configuration and no more code were needed to be written for database updates. In addition, the new architecture provided various connection modes for different systems, realising unified management of business services and data services.

Accompanying the increase in business and data services, SIPC also brought together all the reused business functions. These functions could be effectively separated, combined and reused again to cope with future business growth, further demonstrating the value of the SOA platform.

BEA's abundant experience in SOA implementation and products met the needs of SIPC. The deployment of the OEPIIS has also set a solid foundation for the future development of SIPC.

#### [About BEA Systems](#)

BEA Systems, Inc. (NASDAQ: BEAS) is a world leader in enterprise infrastructure software. Information about how BEA is enabling customers to transform their business by building a Liquid Enterprise™ can be found at [bea.com](#).

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