



# **The implementation of the SAP ERP system in Southern Poland Coal Company TAURON Group.**

## Client's profile.

Południowy Koncern Węglowy- PKW (Southern Poland Coal Company) belongs to TAURON Group. It consists of two mining facilities of hard bituminous coal, i.e. Zakład Górniczy Sobieski in Jaworzno and Zakład Górniczy Janina in Libiąż. Annual coal output by PKW reaches 5 million tonnes. Coal is sold directly to Południowy Koncern Energetyczny (Southern Poland Power Company that belongs to TAURON Group) and to other clients in a dealing network, within the advising system, for cash and coupons (for the employees and pensioners). Since recently, PKW also sells aggregates and their mixtures, which are waste created during coal mining.

## Client's requirements.

In 2010, PKW decided to implement a technologically advanced ERP class system with an integrating platform enabling provision of IT services using SOA architecture. The aim of using Service Oriented Architecture was to maintain flexibility which allows for the management of business processes in a very changeable environment and to enable integration with systems within the capital group. In order to keep freedom in selecting an IT services provider, PKW chose an ERP system, owing to which IT services can be provided by many companies. As a result of a tender procedure, an offer of Asseco Poland was selected which consisted in implementing the SAP ERP system on the SAP NetWeaver platform and constructing composite applications for specific

PKW processes which are not supported by the ERP standard systems. The first stage of the project included the implementation of functionalities supporting production planning, shipment, and sales, including processes related to storing and processing coal in internal and external warehouses. The starting point was a map of business processes developed by PKW. During the project, the map was supplemented with processes resulting from replacing mechanical railway track coal scales with electronic ones and from starting sales of coal pellets and mining waste. Based on the verified and supplemented map of processes, application services were defined and roles for system users were determined.

## Description of the solution.

Owing to specific characteristics of the industry, Asseco Poland developed a few dozen functional solutions which adjusted the system to PKW purposes. One of them is used to schedule shipments in relation with the process of advising and generating sale orders. It is a basic tool of communication and coordination of operating activities. Another application supports work of the security team and the system of passes for vehicles entering the facility; it also enables the queuing of vehicles in the Client Service Centre owing to, among other things, advising. Drivers are notified of the possibility of entering the loading dock with a display board and a text message.

Client verification is also performed using an original application by Asseco Poland, prepared precisely according to PKW expectations. This application operates in the SAP ERP environment, in full integration (SAP PI) with the accounting and finance system, which provides complete accounting information, e.g. on payments made,

receivables (including overdue ones), advanced payments etc. The tool prepared by Asseco allows for making responsible decisions on shipments based on the status of financial relationships with clients, determined according to all economic events and financial operations.

Dealers' website is another application prepared for PKW by Asseco. It is used for wholesale of coal to middlemen. It enables dealers to generate orders based on contracts concluded beforehand, sign them with qualified electronic signatures, administer their own data, enter data on advising and rail demands, and view information on contracts, invoices, and available products.

## Client's benefits.

The implementation of the ERP system adapted to the specificity of a mining company, in particular business processes according to which PKW operates, has improved the quality of customer service, facilitated the production planning process and mining management process, and streamlined the circulation of information and data entered to the system and generated by the system. This was achieved by providing a constant access to information in both mines and introducing uniform layouts of forms and reports generated by the system as well as a uniform layout of the available information. The development of a central data base covering all divisions related to sales enabled complete data integration within one system. Economic events are registered in the place of their occurrence; data concerning these events is available to employees at appropriate operating positions. Therefore, information necessary for making decisions at all management levels is of better quality, more complete, and easily accessible.

## Control of shipments.

One of key functionalities developed by Asseco is a multi-layer scales application adapted to cooperation with scales of different types. Hard bituminous coal mined by PKW is weighed on a fine coal scale, general cargo scale, dynamic conveyor scale, and conveyor scale, which ships goods to Zakład Ciepłowniczy in Libiąż belonging to Nadwiślańska Spółka Energetyczna. The weighting stand is supported with a JAVA applet integrated with the SAP system and the scales server, which controls loading works. The scales server also controls circulation of documents in relation to data prepared in the application for the Client Service Centre. In addition, the application is integrated with outline barriers and monitoring cameras. They take

photos of cars with coal in order to monitor the positioning of vehicles on scales, which is a condition of determining the quantity of taken coal correctly. Another application supports shipments by rail, which requires separate shipment documents, forming trains, registering control weighing, and modifications of carriage numbers or product indices. It supports eight railway track scales localized in both facilities. It also enables a blockade of loading, owing to the integration with the SAP module supporting the coal quality control process. This application is also integrated with outline barriers and cameras verifying loading levels – the photos are archived in the system.



## Production nuances.

Coal enrichment and processing is a process supported in a major part with standard functionalities of SAP MM and SAP PP, which were supplemented by Asseco with a portal tool; in this event, this was a desktop for planning production. On the other hand, coal quality analysis is performed using a dozen or so reports and forms prepared by Asseco and a procedure of control batch closing developed especially for PKW.

Dealing with aggregates involves numerous processes analogical to coal sales; however, they have their own specificity, which makes these applications much more complex. Firstly, an additional functionality is necessary which enables the planning of aggregate mixtures production according to a specified recipe. Specific characteristics of these products result in different functioning of the applications for client service, security, and scales (aggregates can also be sold according to their size). Similar differences occur in the event of waste, which may also be sent to clients for their own disposal, not only for sales.

## Integration and complexity.

Apart from the transaction system, PKW decided to use the SAP EP portal and the SAP BW data warehouse. It has also had SAP Document Management System implemented with Content Server and elements of Workflow, which enables full registration and distribution of documents incoming and outgoing in separate units of PKW. However, a key role in the project was played by competences of Asseco in creating solutions integrating hardware and system environment. SAP Netweaver Process Integration broker platform was used for integration.

Within the scope of technology, an integration bus (SAP PI), working in the event mode, was used for integration purposes. Thus, we have obtained a high level of interfaces flexibility and a possibility to manage them easily,

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What can prove integration complexity of the system is a number of interfaces; however, in the event of this implementation, it is worth mentioning the real number

of data flow streams, that is to say, almost 50 between the SAP system and the financing and accounting application only. Furthermore, the ERP application has been integrated with industrial automatic devices as well as fiscal printers, the HR and remuneration system, scales application applets, the display board, and the system for communication with drivers via text messages.

The project completed for PKW was different in many aspects. I don't know any other coal sales system based on a standard ERP system which would be so closely integrated with automatic devices, the portal, the system of communication with clients, the support of client service centres, or sales planning and reporting. And all of this has been achieved in one technological environment, supporting processes related to coal sales in a comprehensive way. What is more, the system is ready for other business areas to be started, ones closely integrated with sales processes, e.g. investments and projects or renovations and traffic maintenance. At present, Asseco deals with maintenance and administration of implemented applications. Other modifications are almost ready, e.g. ones supporting coal excise duty introduced in January 2012.

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