DYNAPAC UPDATE

TO ALL DYNAPAC ROAD CONSTRUCTION EQUIPMENT STAKEHOLDERS April 2017

BPO - Process Optimisation in Road Construction

Thanks to an increased digitalisation processes in road construction, the industry has been forced to develop innovative solutions in order to meet increased customer quality expectations. Contractors are now faced with ever-increasing demands where factors such as Industry 4.0, Lean Management and Building Information Modelling (BIM) have become integral parts of the road construction industry. One particular focus area for digitization processes is within project planning and optimisation of road construction projects, and BPO is a software solution that has been developed to meet these needs.

Developed by Volz Consulting GmbH, BPO brings building contractors a significant step closer to the practical application of road building. This market-leading system is successfully being used by more than 30 building contractors in Germany, as well as contractors in 7 other countries. Approximately 35% of the total asphalt production in Germany in 2016 was paved using the BPO system. BPO processes make multi-project planning, resource planning, paving processes and analysis more efficient, quicker and easier. The BPO transparently links paving supervisors, paving managers, foremen, mixing plant operators, truck drivers and forwarding agencies together, guaranteeing a seamless and efficient process workflow.

Within 10 days, 17,000 tonnes of compact asphalt was paved on the main road B180 near Rothenschirmbach.

The German construction company Günter Papenburg Verkehrswegebau GmbH has tested the high-performing BPO system on two complex road construction projects with great success. The scope of these tests was to plan the construction, control it by using BPO's real-time module and digitally document the entire construction in detail.

BPO optimises and controls a project on the autobahn A14. Over 50 trucks during a 24-hour shift were involved in this project / worksite.

To ensure a holistic process control, BPO connects mixing plants and transport fleets with the construction site via a fleet management interface. This networking interface provides all key players in a road construction project with an overview of the entire paving and logistics process as well as the delivery situation for all parties involved.

A14 ASPHALT PROJECT

By using the BPO interface, in conjunction with the weighing systems of the mixing plants, all delivery notes were recorded digitally. This eliminated manual registration and increased the quality and efficiency of the information recorded during the project. By integrating Günter Papenburg's existing fleet management system with the location data of more than 600 trucks into BPO, further information such as geo-location data and estimated arrival times of the trucks were calculated in BPO. This information was then used to assist the paving manager on the construction site. Screed width or layer thickness information recorded by Dynapac pavers can also be made available through FleetLink Pro, the fleet management system from Atlas Copco Road Construction Equipment. In short, BPO simulated a virtual supply chain, which, at any time, showed the construction site workers when they could expect the next delivery of asphalt. The documentation of the truck waiting times took place automatically by using a predetermined geo fence, a kind of virtual tracker surrounding the construction site and the location information of the trucks.

Since the system is 'cloud-based', only a Tablet PC or smartphone is needed to access all relevant data at the construction site. The paving manager was able to fully operate BPO after a few minutes thanks to the system's intuitive user-interface. During the construction project, the paving crew could monitor how much material had been paved, how much tonnage way on its way to the construction site and from which mixing plants further material could be expected to be delivered. The paving manager, who had carried out the planning in BPO in advance, was able to follow the paving process in real time on his smartphone and was automatically kept informed about the project's status and deviations.

70,000 tonnes of asphalt were planned and controlled with BPO in real time on the autobahn A 14 within multiple 24-hours-shifts. Add to that, three kinds of mixed materials from five different mixing plants were timed according to the just-in-time principle. The integration of external fleets was no great challenge for BPO as the free App "BPO Live" is available in all common app stores for free.

B180 PROJECT RESULTS

Another project was carried out on the B180 main road near Rothenschirmbach. Within 10 days, nearly 12,500 tonnes of binder layer and 4,400 tonnes of surface layer from three different mixing plants were paved using the compact asphalt paving method. The whole logistic handling of the mixed materials was planned with the module BPO "Compact Asphalt". Since this section of the road contained three bridges, additional time for the transfer of materials This created additional challenges for the handling of the mixed materials, logistics and for the Dynapac paver.

Typically for BPO, the paving crew was able to handle the system independently, only after a short instruction and without any interruptions. The material flow between the different mixing plants were coordinated and displayed in real time, so that all different types of materials were available at equal ratios when necessary.

Further key BPO features that were used from day 1 in this project were the integrated newsroom (allowing for direct communication between the construction site, mixing plants and trucks) and the integrated paving diary (a complete digital documentation of the project's paving operation).

Michael Bayer, paving manager at GP Verkehrswegebau GmbH puts it in a nutshell: "The fantastic results of BPO's easy-to-use planning optimisation and real-time paving process has convinced us to implement this software system in all of our asphalt projects in the future."

FleetLink

Atlas Copco Road Construction Equipment FleetLink provides customers a tool to monitor and manage their machine fleet efficiently and conveniently. The intelligent telematics system offers many possibilities to optimize fleet usage reduce maintenance cost and save time and money.

The standard FleetLink package records the location of a customer's equipment once every hour. Geo-fences can be defined so that when a machine leaves a certain area, an alert is sent to a pre-defined e-mail address.

FleetLink Advanced offers several interesting additional features supporting a full optimization of the machine park. It registers the equipment location every minute and logs many extra machine parameters like fuel consumption, engine load and coolant temperature.

FleetLink Pro is the most extensive package offered and especially useful for the most advanced equipment like pavers. On top of what FleetLink Advanced offers, it includes paving parameters like screed width and layer thickness values, all linked to the geographical location of the paver. FleetLink Pro also offers an integrated interface with BPO a construction process optimization tool that allows contractors to optimize planning, execution and documentation of construction projects.