A better deal for both

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Transport optimisation software can cut cement distribution costs significantly. That's great for all cement producers who run their own fleet of trucks. But what if you subcontracted deliveries to hired hauliers and franchisees? Who will benefit from the investment in IT infrastructure? With the right set-up it can be a win-win outcome for both parties.

Cement transport plans usually have a limited shelf life. Affected by daily challenges such as last-minute orders, cancelled or delayed jobs, long waiting queues, or truck or machine breakdowns, they quickly become obsolete. Schedulers and dispatchers are forced to review and adjust their planning decisions constantly – right up to the moment before execution.

Available conventional planning software may offer some relief: they automatically copy order data from the ERP system, provide user-friendly graphical interfaces to help assigning loads to trucks, calculate schedules and trip times, visualise routes on maps. GPS telematics components can also track truck position and delivery status in real time. But with a large truck fleet on the road, numerous cement plants and delivery sites spread across a wider region, huge data volumes have to be handled to find a set of good routes. The human brain is not up to this sort of challenge. Even experienced schedulers and dispatchers are stretched to their limits, assuming they only work with software that does not have its own intelligence.

Transport optimisation software can be a win-win for all

Intelligent optimisation

A giant leap forward in planning technology is the use of intelligent optimisation software packages. They are equipped with algorithms that analyse a virtually endless number of scheduling decisions in real time and identify those that are ideal for minimising costs and maximising service quality – based on the business criteria defined. Figure 1 compares real-world data from a producer in the construction industry in Europe – before and after optimisation. The scenario reflects a typical working day and is based on the following parameters: five plants, two depots and 103 bulk orders for 78 different customer delivery locations.

The key operational performance figures show the enormous potential of optimisation: empty mileage is down by almost nine per cent and the number of loads per truck per day soared by 45 per cent. All that comes with fewer working hours (-4.5 per cent). But most impressive is the reduced number of trucks for the same quantity of delivery: 19 instead of 28. That's great news for all cement producers who run their own fleet of trucks: the results translate directly into considerable cost savings and improved service levels for their customers. And since each truck typically emits hundreds of tonnes of CO_2 in its lifetime, optimised planning also has a direct impact on reducing a producer's carbon footprint.

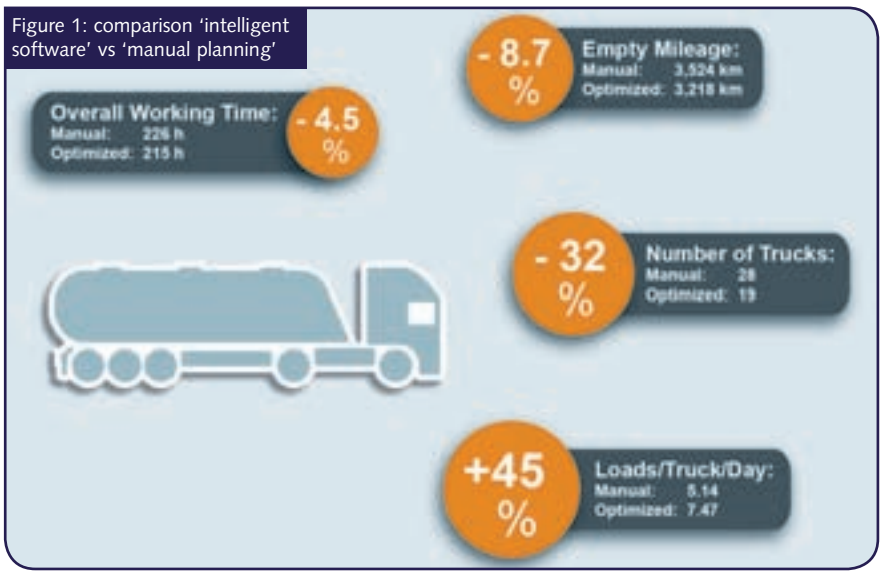

Figure 1: comparison 'intelligent software' vs 'manual planning'

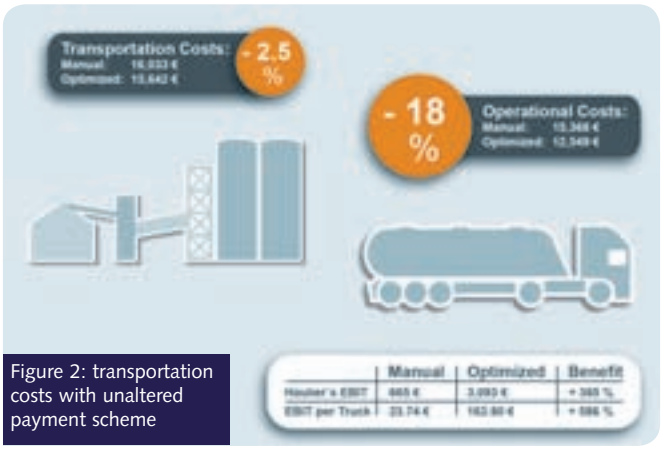

Figure 2: transportation costs with unaltered payment scheme

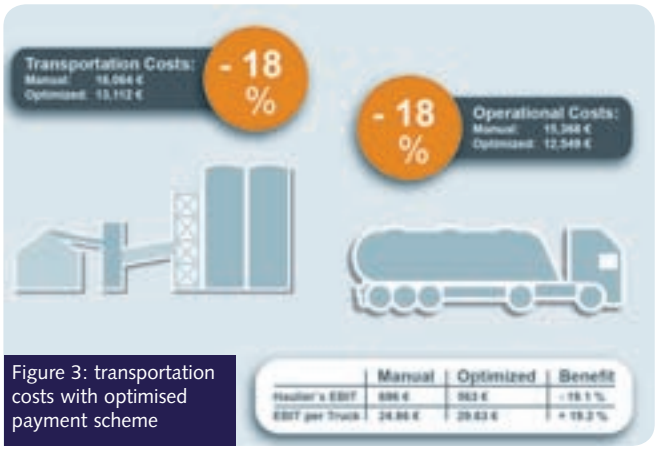

Figure 3: transportation costs with optimised payment scheme

But what if the producer subcontracted all deliveries to hired hauliers and franchisees? Besides customers and environment, who will benefit most? Figure 2 shows some of the financial figures. The producer's daily transportation costs before optimisation were at €16,033 and at €15,642 after optimisation. The haulier's operational cost went down from €15,368 to €12,549.

So the producer's costs dropped by a mere 2.5 per cent, while the haulier's costs plunged by 18 per cent. And the haulier's EBIT (earnings before interest and tax) saw a staggering increase of 365 per cent while the EBIT per truck skyrocketed by 586 per cent. Remember, it is the producer who ploughed money into the IT landscape. Nevertheless, how is it that the investor's yield does not meet expectations? Transport optimisation has proven itself as a very effective cost reduction tool elsewhere in the industry, why not in this case? The answer lies within the payment scheme.

Optimising haulage rates

Basis rate, short-distance rate, long-distance rate, minimum load, waiting time, standby time, diverted load, hourly rates for on-site work, transfer fee, return cartage all feed into haulage rates. Haulage rates and payment schemes within the industry are generally a mix of different ingredients. Every producer has its own formula to reflect the utilisation of the carriers' vehicles. And depending on the variables and parameters used, the cost savings yielded by intelligent software will either end up in the haulier's pocket or in the producer's pocket – or fairly split amongst both of them.

In the given example the haulier's contracts had to be reviewed and adjusted so that both parties can secure their part of the benefit: the producer lowers his unit logistics costs and the haulier is rewarded for working even harder. The producer's amount went down from €16,064 to €13,112, in line with the haulier's operational costs reduction from €15,368 to €12,549. And although the haulier's EBIT decreased by 19.1 per cent after the review, the EBIT per truck increased by a sound 19.2 per cent.

The new scheme is based on a formula that encourages the best use of all available trucks, gives incentives to achieve more kilometres per truck per day, aims at fewer kilometres per order and focusses on more productive journeys.

Benefits for all parties

The introduction of intelligent optimisation software should always be associated with organisational changes such as service level definition, pooling of truck fleet and review of haulage contracts. If cement producers do decide to invest, they should combine their industry knowledge with the consulting expertise of the software provider. The benefits for all parties involved are:

- Cement producer will gain a competitive edge in terms of price and service quality, achieve a greener carbon footprint and will be able to offer sustainable haulage rates to its subcontractors and franchisees.
- Hauliers will be able to reduce their operating costs, get a fairer slice of the pie and ultimately improve their bottom line.
- Customers will enjoy a better service quality and the option to choose from suitable delivery slots at the point of order.
- Dispatchers gain full control over their OTIF (On-Time In-Full) performance.

As part of the daily routine the software allows the user to select whether service levels will be met with fewer vehicles or whether service levels should be increased with the existing vehicle fleet.

- The environment will profit from fewer trucks on the road, less empty trips and reduced carbon emissions.

About INFORM

INFORM specialises in planning and logistics decision-making software that uses intelligent optimisation to improve business productivity. These advanced solutions, based on mathematical optimisation algorithms, add on to existing IT systems.

To quickly map complex structures and calculate the best possible solution from large amounts of data, Inform uses operations research and fuzzy logic as a basis for its software. As a result, Inform's software systems can 'think' on their own and make intelligent decisions. This allows companies to make the best possible use of resources such as people, machines and inventory.

For the past 45 years, branch specialists of INFORM's different business units are constantly developing and perfecting optimisation and decision support solutions and providing qualified 24/7 support.