

## CASE STUDY: Optimising Payload Performance

### Problem

Payload management plays a large role in meeting production requirements and keeping a fleet operating efficiently.

Poor payload management, has a direct impact on productivity.

**8% increase in  
production just one  
month after  
installation.**

Overloading beyond payload limits risks machine durability, whereas underloading introduces severe production losses.

### Study

The purpose of this study was to assess operational payload performance on a site that had recently implemented iVolve's *Load Assist* capability.

A baseline level of payload performance was recorded prior to iVolve implementation.

Once operators and management were properly trained, data was collected over a two-month period

tracking the improvements made in payload management.

The site used Liebherr 9350's loading 789C's with overburden material and, to be included in the study, required to have a count of more than 10 loads in a shift.

### Solution

To assist with optimal loading of each truck, iVolve's *Load Assist* displays load pass and total tonnage, BCM, material, location and centre-of-gravity data directly to excavator and truck operators via an in-cab screen.

Load data is automatically collected from the truck's on-board strut sensors (or via operator entry). Tonnage or BCM data is rechecked as the truck moves off via the second gear rear-weigh, and is retransmitted to the excavator to ensure the operator receives the correct payload value.

Operators can monitor their progress with immediate on-screen statistics including rates, load count and total tonnage/BCMs.

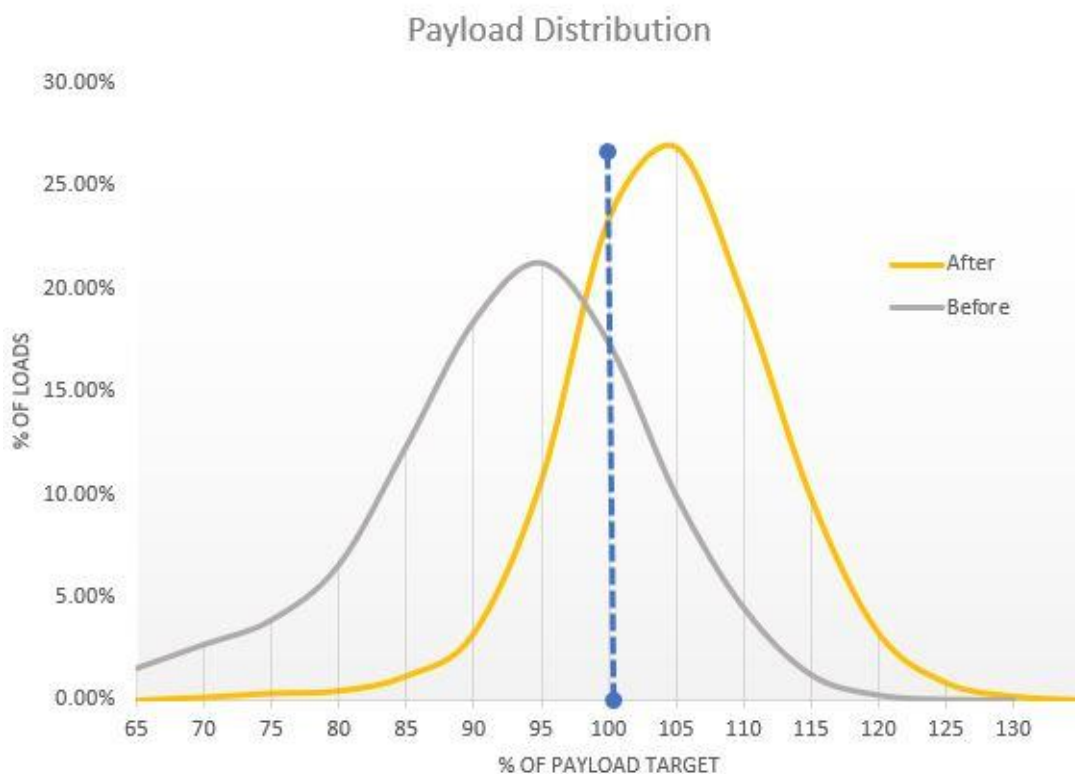


With GPS fitted, trucks automatically “pair” with the excavator based on GPS proximity and the truck’s operating state resulting in an effortless operator experience.

**Findings:**

Baseline payload management at site contained averages of 85% to 95% of target. Figure 1 illustrates the payload distribution after iVolve installation. The data shows a much leaner curve with the majority of loads falling in the 10% range to target.

*The majority of loads falling in the 10% range to target.*



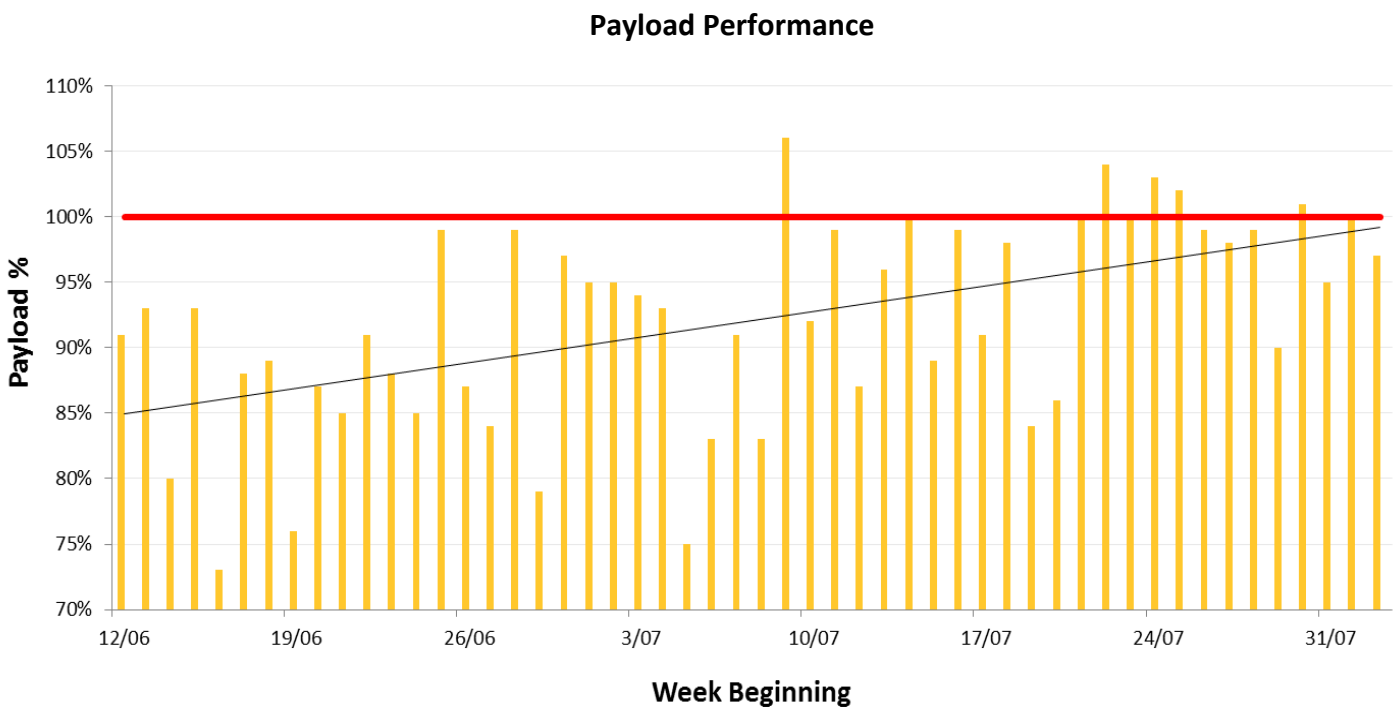
**Figure 1: Payload Distribution pre & post iVolve installation**

Through training and operator awareness *Load Assist* improved operator's ability to hit payload targets. Over a two-month period the payload increased by 8%. Figure 2 illustrates the average payload percentage per shift where the black trendline indicates an increase towards the target red line of 100%.

Using a truck and shovel costing model and running these figures back over the past two months it is evident that the system had paid for itself in lost production costs just one month after installation.

**iVolve's *Load Assist* provides the solution to inefficient payload performance. Ten weeks after iVolve was implemented on site, the payload performance was averaging at 103%, indicating an 8% increase in production. As well as this, the payload distribution within the ideal 90%-110% target increased from 67% (prior to iVolve installation) to 80.5% (post iVolve installation) signifying a 13.5% improvement.**

***iVolve's Load Assist had a return on investment just one month after installation.***



**Figure 2: Payload performance at a coal mine over 51-day period.**

## **iVolve**

Established in 1995, iVolve is an Australian industrial technology company delivering real-time machine intelligence to the resources sector enabling our clients to make educated quick decisions to increase productivity, reduce costs and minimise risk.

The iVolve Fleet Management System, **Mine4D**, extracts, records and presents crucial operational data for the monitoring and management of a mining fleet. This provides all levels of the mining operation the knowledge to back smart decisions.

Our experienced R&D team at iVolve are passionate about research and keeping the company at the forefront of innovative, intelligent, yet simple solutions for our customers. As a result, the company has built a solid reputation over the years as a leader in its field.

If there is an opportunity for productivity improvement within your operations, our team are always ready to assist.

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