



The ROI of Simulation-Based Operator Training

Understanding this technology & measuring the benefits before you jump in

Presented by

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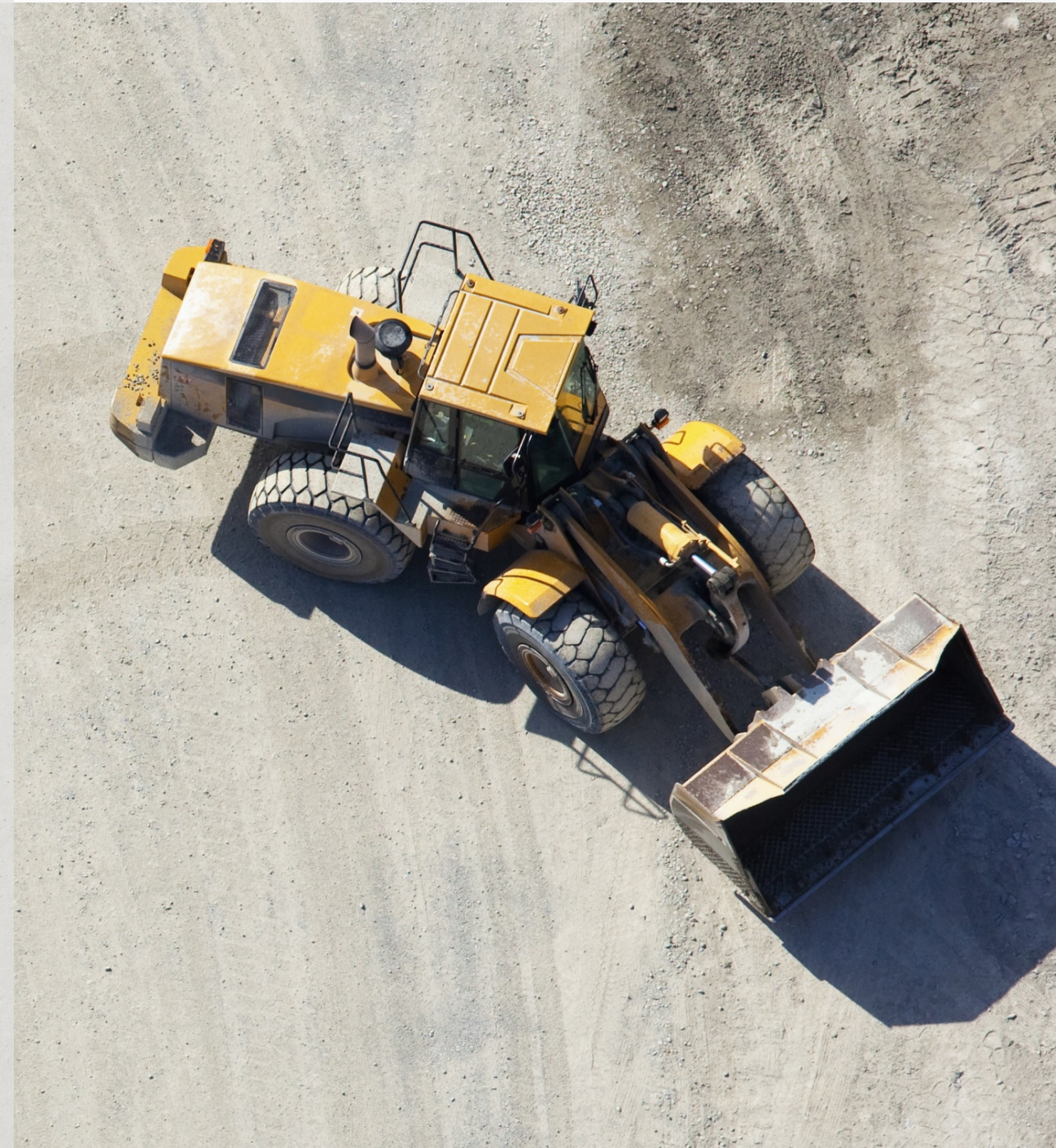
Presenter



Drew Carruthers

**Construction & Earth Moving Product Manager
CM Labs Simulations**

In his role, Carruthers directs the development of the Vortex Construction and Heavy Equipment Training Suite. Previously, he was technical training group leader at CAE, a manufacturer of simulation and modeling technologies and training services. Carruthers graduated from Dalhousie University with a bachelor's degree in mechanical engineering.

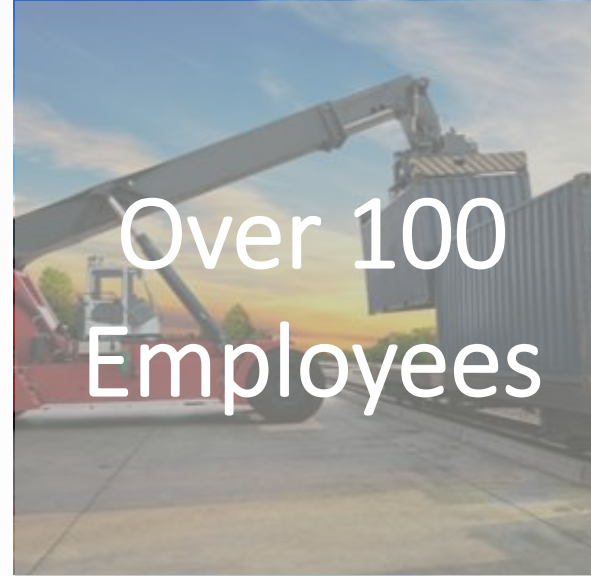


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WHO WE ARE

- Leading provider of simulation-based solutions
- Based in Montreal, Canada
- Simulators for construction and port equipment operator training
- Over 1,000 simulators worldwide



AGENDA

- Introduction
- Identify and describe the training
- Reasons for training
- Current cost of training
- Benefits of simulator-based training
- Calculating your ROI



Introduction

INTRODUCTION

- Simulation based training becoming more mainstream
- Early adopters have pushed expectations of simulators
- Led to more efficient use of training time
- **However**, still a need to justify investment



Step 1

Identify Training Needs

IDENTIFYING THE TRAINING NEEDS

What simulators can help you accomplish depends on how you define your goals:

- Do you plan to use sims to teach basic controls familiarisation?
- Or, will they help you graduate fully competent apprentices?



IDENTIFYING THE TRAINING NEEDS

Different approaches include:

- Train during inclement weather
- Assess trainee readiness to progress
- Alternate equipment time
- “Stay sharp” between jobs
- Retrain following incidents



IDENTIFYING THE TRAINING NEEDS

Think about the following:

- Where will the training be delivered?
- Who will be delivering the training?
- How many students are you expecting?
- How long does each training session currently last?



Step 2

List Reasons for Training

REASONS FOR SIMULATOR-BASED TRAINING

What are you hoping to achieve?

- Decreased machine wear
- Increased focus on safety
- Time savings
- Increased retention
- Cross training
- Normalized work force
- Increased productivity



Step 3

Cost of Training

CURRENT COST OF TRAINING (DIRECT)

Equipment Costs

Rental Equipment

- Reduce rental time
- Reduce rental frequency
- Lower risk of damage

Dedicated Equipment

- Fewer repairs
- Reduced fuel
- Reduced maintenance
- Extended life of machine

Production Equipment

- Increased production
- Transportation times to training center
- Fewer novice operators on equipment
- Fuel/Maintenance

CURRENT COST OF TRAINING

- Family-run construction company
- Founded in 1956
- Grew to 300+ professionals
- Simulator with excavator, wheel loader, crawler crane (85t) and RTC (40t)
- Reduced costs by 75%

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CURRENT COST OF TRAINING (DIRECT)

Instructor Costs

Dedicated Trainer

- Improve trainer/trainee ratio
- Reduced training time
- Reduced risk
- More consistent training schedule

Internal Experience

- Improve trainer/trainee ratio
- Self-paced learning frees up resource
- Apples to apples comparison (scoring)

CURRENT COST OF TRAINING

- Leader in heavy equipment and crane operator training since 1982
- 2 campuses
(Morrisburg and Oakville)
- Member of the IUOE
- Save 1 week using simulators
(on 6-week training program)

oetio.com



OPERATING ENGINEERS
TRAINING INSTITUTE
OF ONTARIO



CURRENT COST OF TRAINING (INDIRECT)

Injuries: Studies show **indirect costs** account for 80% of total cost of accidents

- Reduced productivity for both the injured worker and the crew
- Clean-up costs
- Replacement costs
- Stand-by costs
- Cost of overtime
- Administrative costs
- Replacement worker orientation
- Costs resulting from delays
- Supervision costs
- Costs related to rescheduling
- Transportation
- Wages paid while the injured is idle

Step 4

Benefits of Simulator-Based Training

BENEFITS OF SIMULATOR TRAINING

➤ Direct

- Higher student-instructor ratios
- Concentrated seat time
- No dependency on good weather

➤ Indirect

- Increased seat time
- Self paced learning
- Peer reviews



BENEFITS OF SIMULATOR TRAINING

Calculations

Tangible Returns	Calculations	Total
Fuel savings	$(\text{hrs}) \times (\# \text{ students}) \times (\text{fuel/hr}) \times (\text{Cost/L fuel})$	\$
Machine depreciation	$(\text{hrs}) \times (\# \text{ students}) \times (\text{maintenance costs/hr})$	\$
Productivity increase	<ul style="list-style-type: none">- Less supervision- Less time to perform operations- Less ramp up time	\$
...		
Total Training Cost		\$

COST OF TRAINING



- Employs 250, \$2M annual training budget
- Every 2.5 hrs rotated between equipment
- Up to 4 years ramp-up time
- Simulator is expected to halve training time
- Benefit of \$750,000 per year

flindersports.com.au



COST OF TRAINING

Examples

- **Del Mar College:** 50% reduction in cost of training (delmar.edu)
- **SAIT:** Double the number of students per instructor (sait.ca)
- **Crane Service Industry:** 40-50% reduction in training time (craneserviceindustries.com)
- **IUOE Local 178:** The Vortex Simulator is used 120 hours more per month than the cranes in the yard (local178.org)



Step 5

Calculate ROI

CALCULATE THE ROI

$$\text{ROI} = \frac{\text{Benefits of Simulation Training}}{\text{Cost of Simulator}} \times 100$$

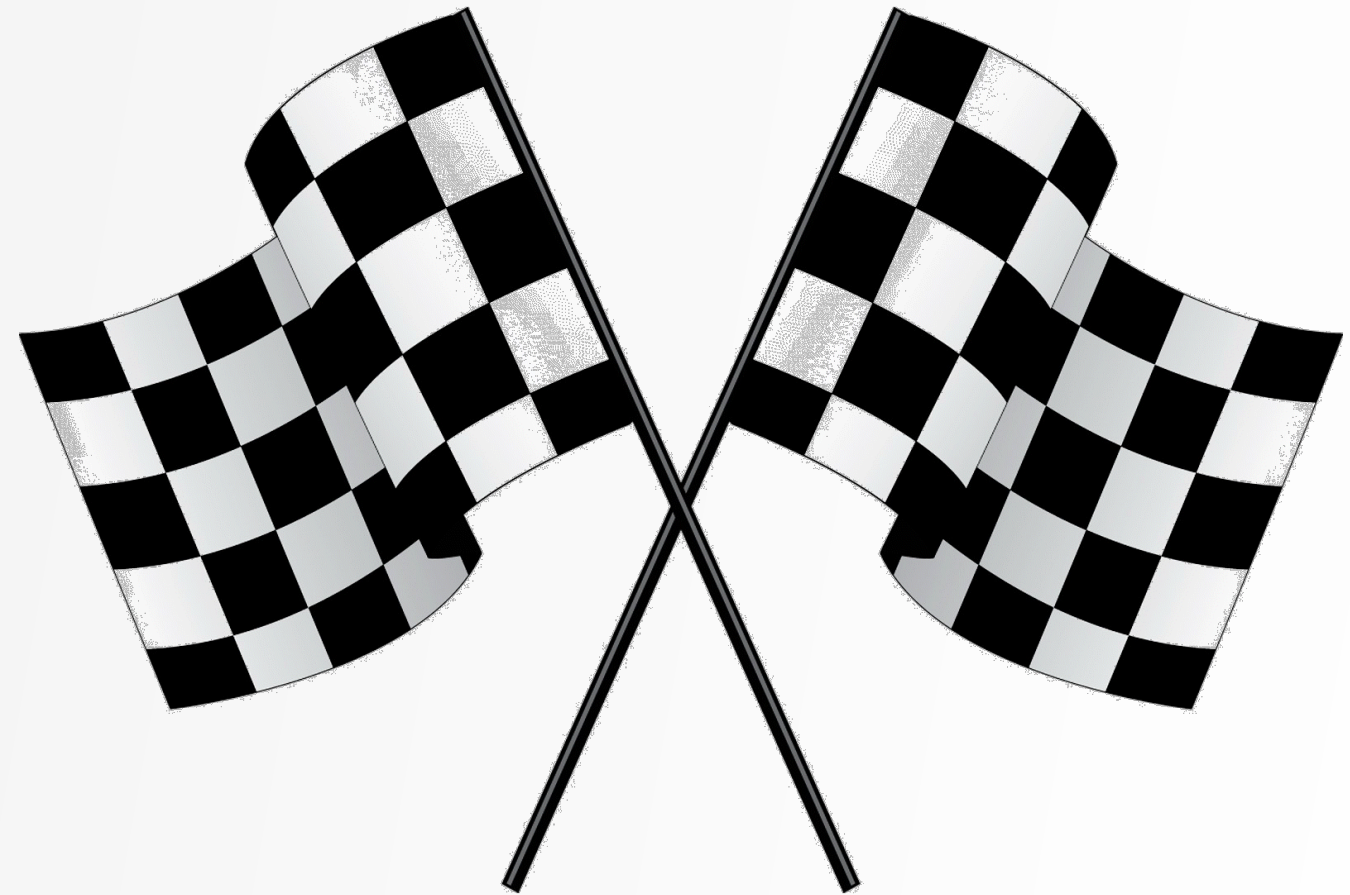
- A value above 100% represents a positive ROI
- Example: **250%** represents a return of **\$2.50** per every dollar invested in simulation based training in terms of decreased costs and increased productivity

Summary

ROI can be used to:

- Maximize returns on training budgets
- Open avenues for new revenue streams
- Demonstrate that simulation is an investment

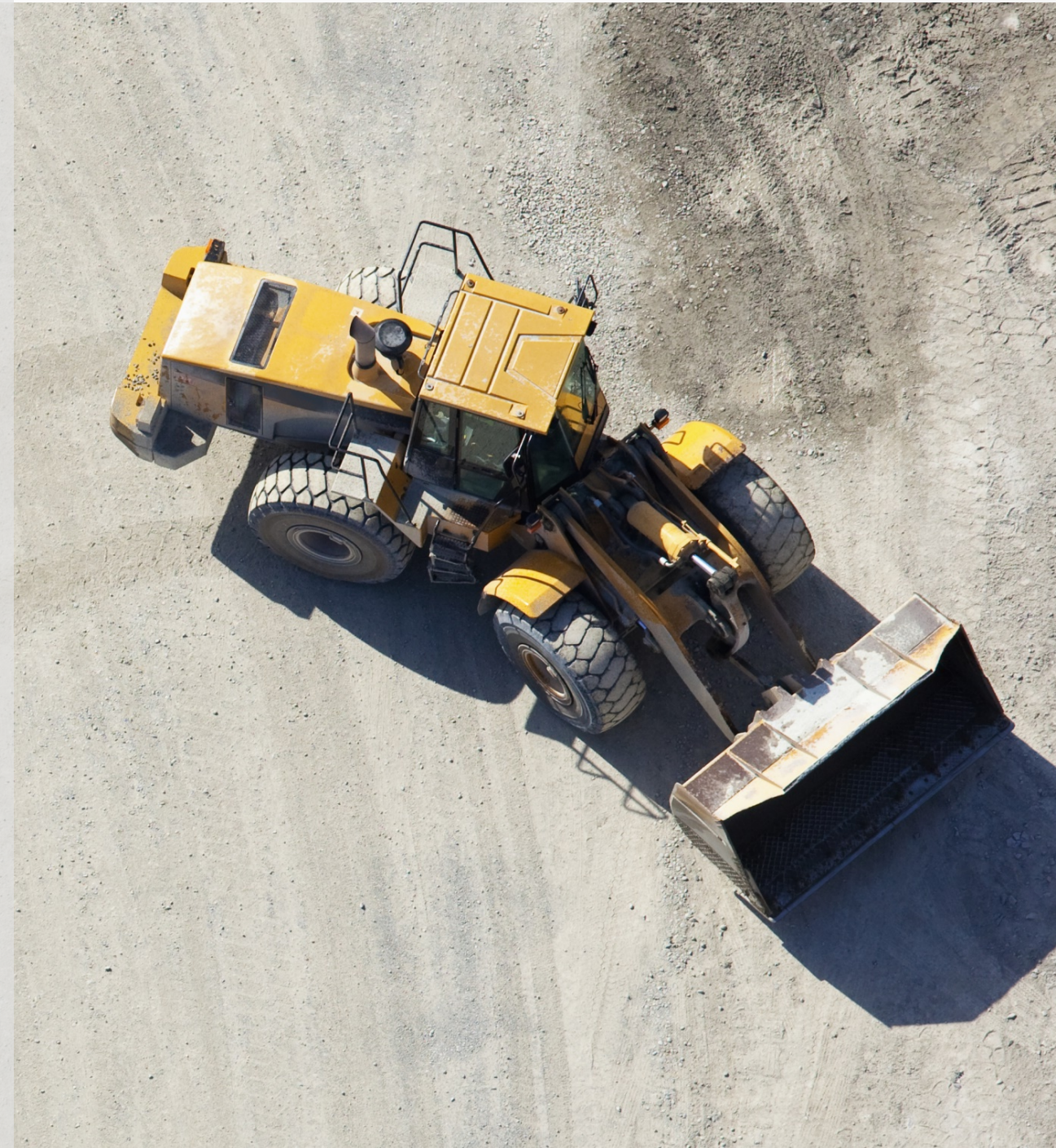
ROI calculations are based on good record keeping!!





Questions

Have a question for today's presenter?
Type your question into the chat feature!



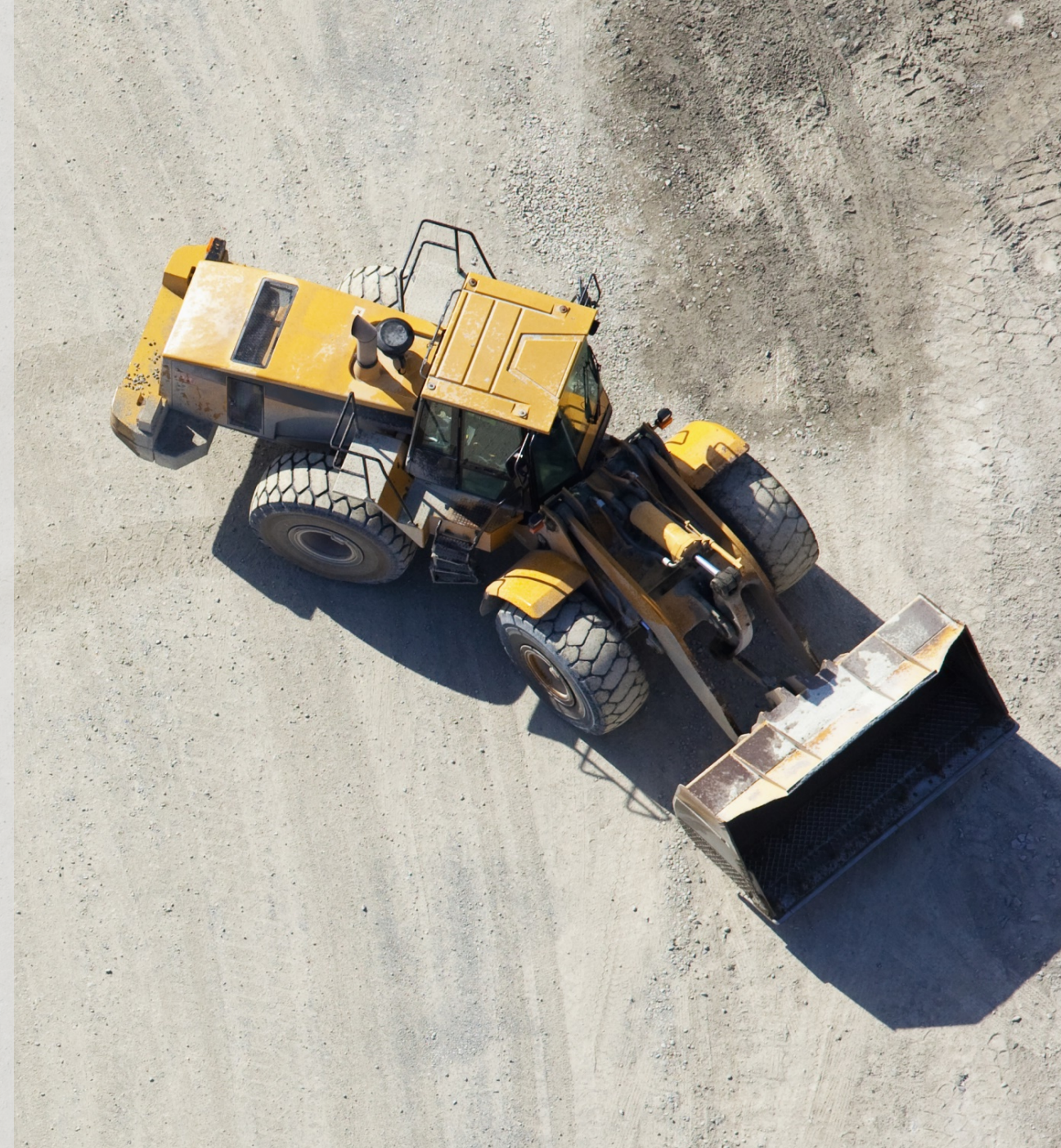
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