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As the Drum Rolls: Transforming the Role of the Concrete Delivery Professional

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MIT CSHub Webinar

September 21st, 2023

The Concrete Suffered Greatly from “The Great Resignation”

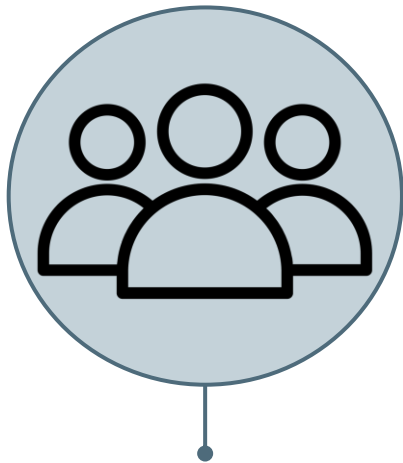


- **28 of every 100** CDPs hired in 2021 **quit** during the year
 - Low pay and inconsistent daily schedules were the top reasons CDPs quit
- The biggest hiring challenge for 71% of companies was **too small a hiring pool**
- While ready mixed concrete production grew 9% over the past 5 years, 70% of companies reported **lost business** due to the driver shortage



MIT CSHub Performed a Comprehensive Analysis to Build Transformative Recommendations

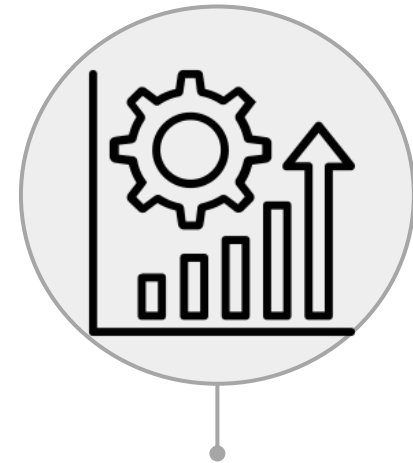
1. Analyzed **36,000 deliveries** to identify opportunities for productivity improvement
2. Engaged with **MIT's Center for Transportation and Logistics FreightLab**
3. Interviewed CDPs, operation managers, non-profits, tech companies, dispatchers, trainers, HR to gain a full understanding of CDP position & technology
4. Constructed a **ready-mix plant simulator**, enabling us to test the cost and savings associated with hiring, retaining, and increasing CDP productivity
5. Constructed & deployed a **unique national CDP survey**



Recruitment



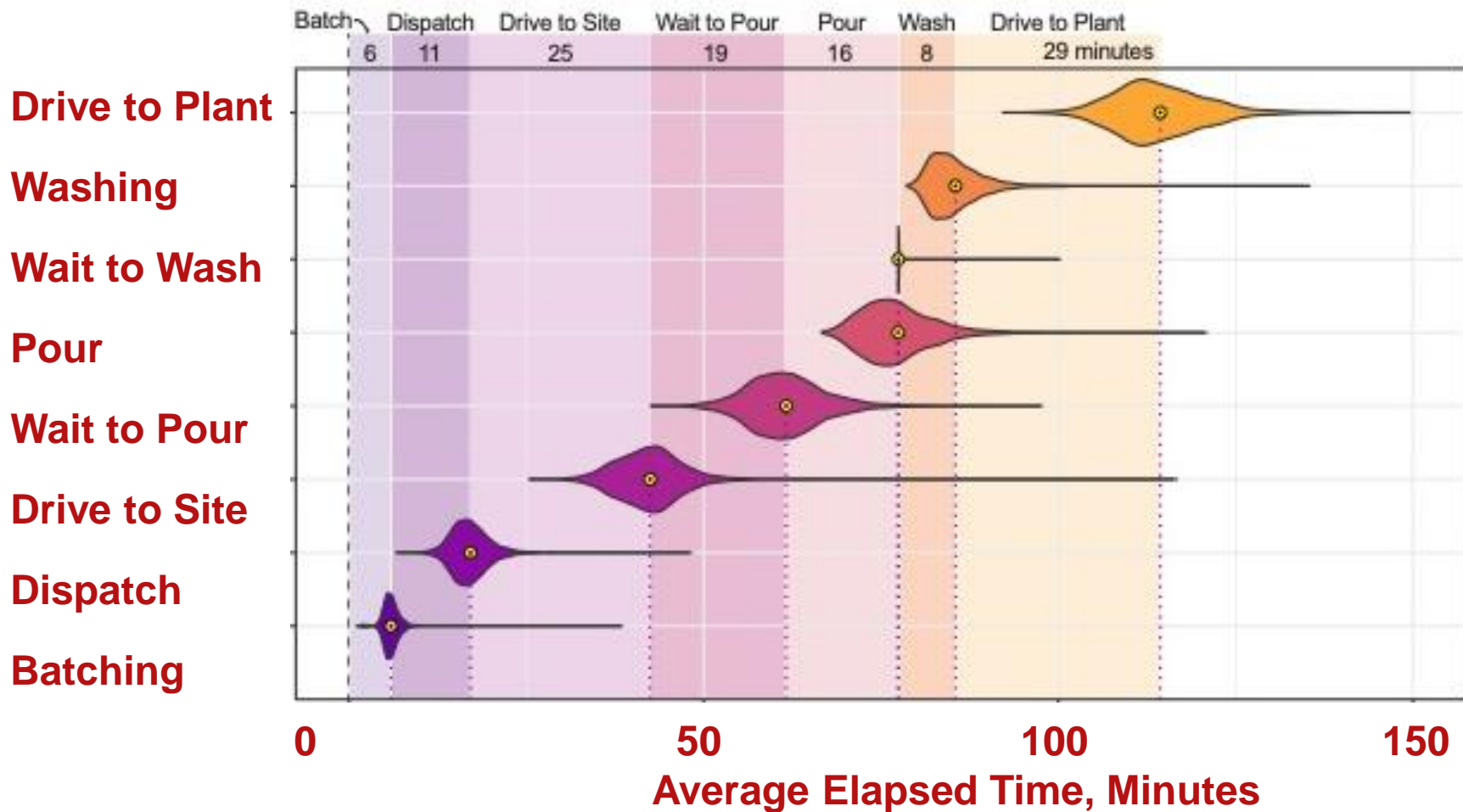
Retention



Productivity

MIT CSHub analyzed 36,000 deliveries to find productivity challenges:

A 12 minute decrease in idle time could eliminate the 10% vacancy rate



Delivery Characteristics:

Avg deliveries: 3.1/Day
Avg duration: 120 min/Delivery

“Frictionless” changes for 10% improvement

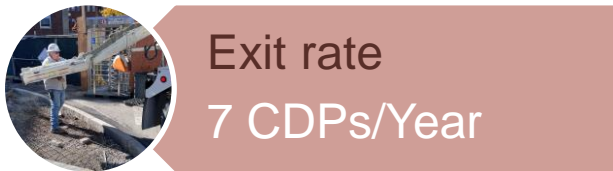
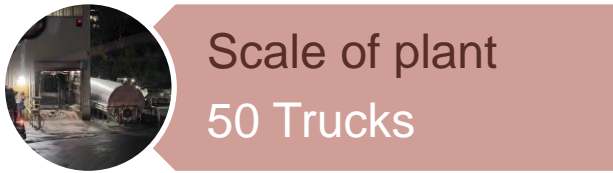
- Increase daily deliveries from 3.1/day to 3.5/day
- Shorten delivery duration from 120 minutes to 108 minutes

Only 12 minutes



CSHub Ready-mix Plant Simulator Estimates Cost to Replace & the Cost of Not Hiring CDPs at a Representative Facility

Model Inputs



Direct Costs

Wages paid during training



Training costs



HR entry and exit

Indirect Costs

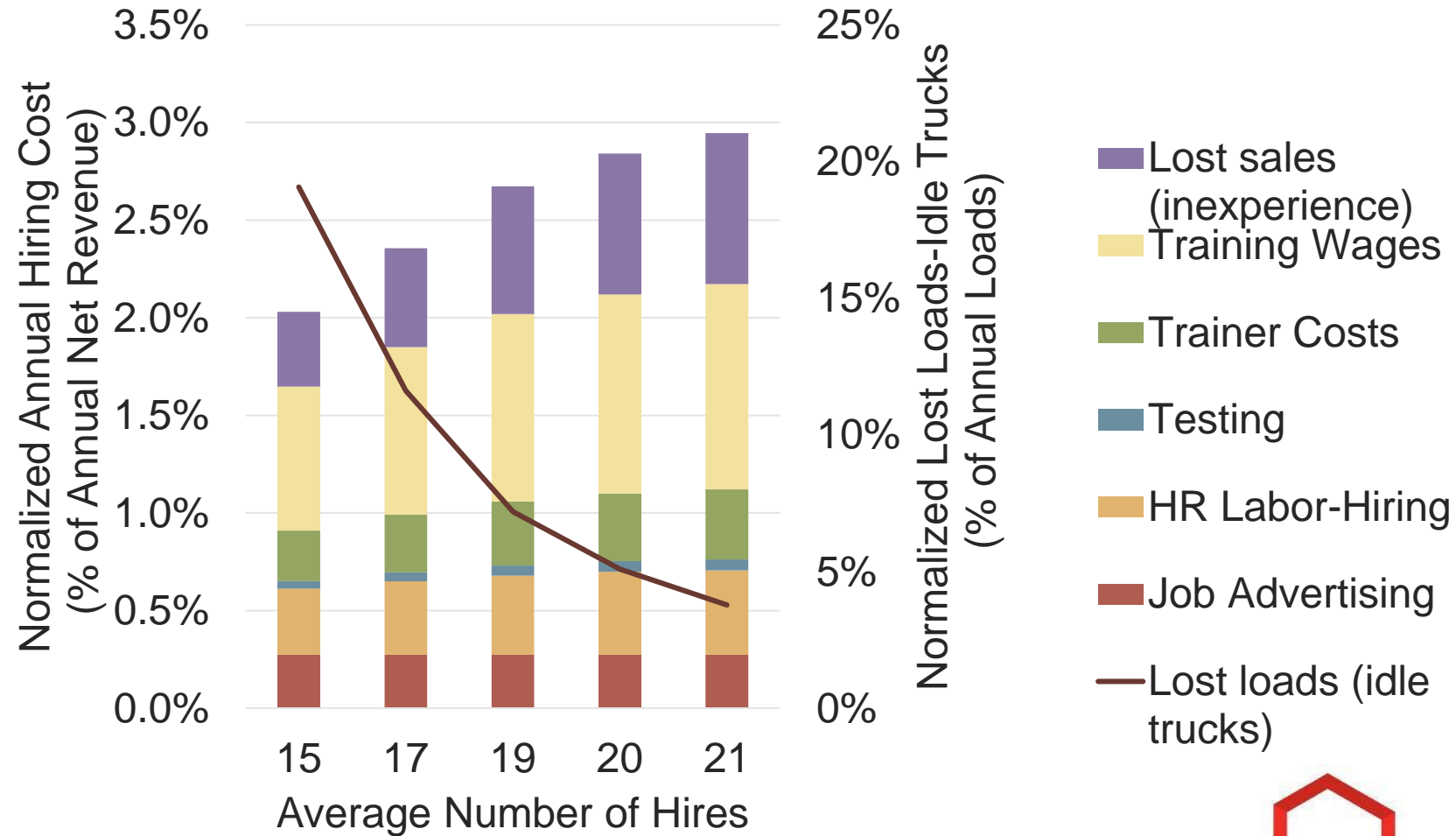
Revenue loss from idle trucks



Revenue loss from reduced CDP productivity

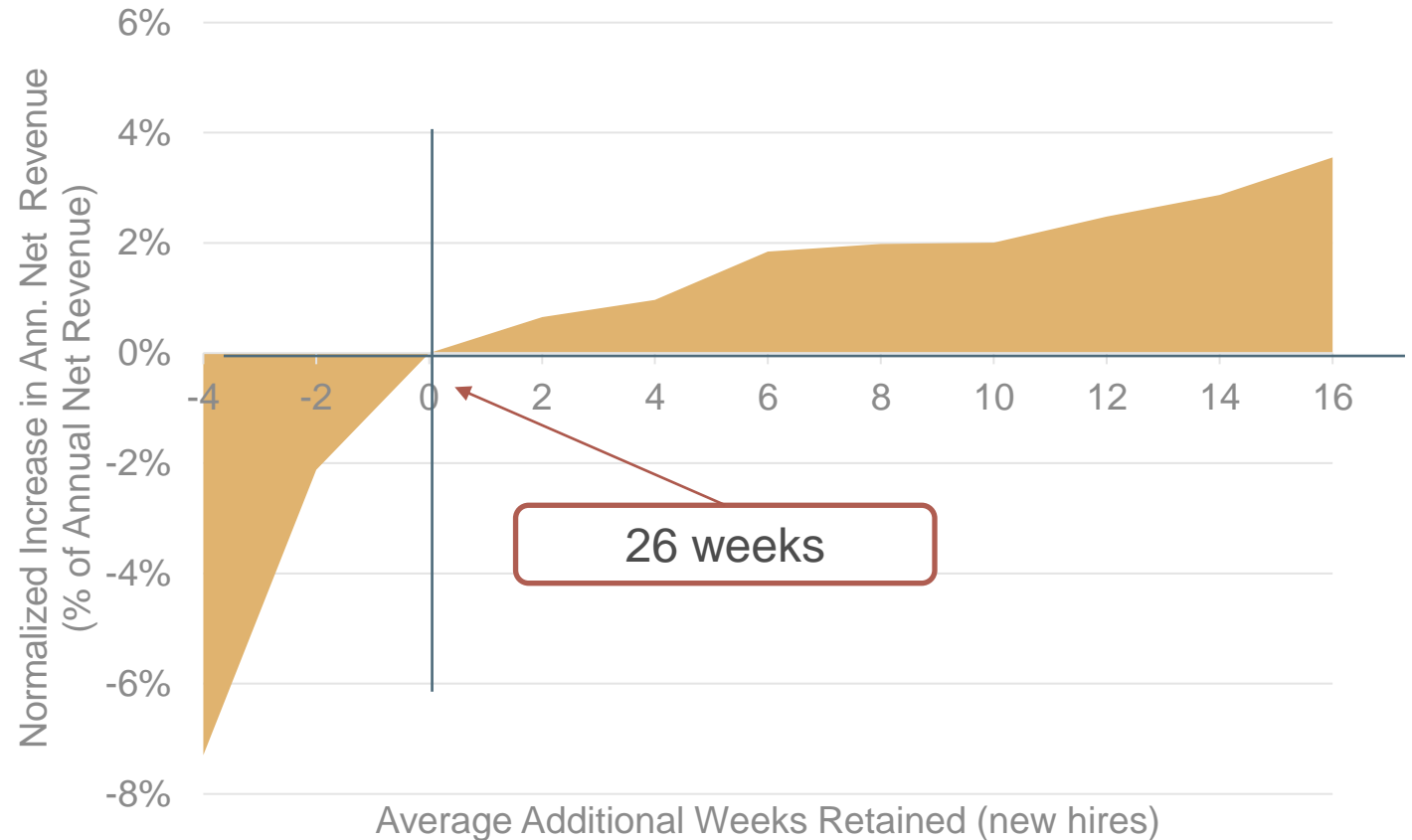
CSHub Simulator Shows That Gains from More Trucks Operating (i.e., reductions in lost sales) Offsets Hiring Cost

- Expanding the recruitment pool to include those with no CDLs or RM experience will increase direct and indirect costs for producers
- The reduction in lost sales from idle trucks easily offsets additional costs

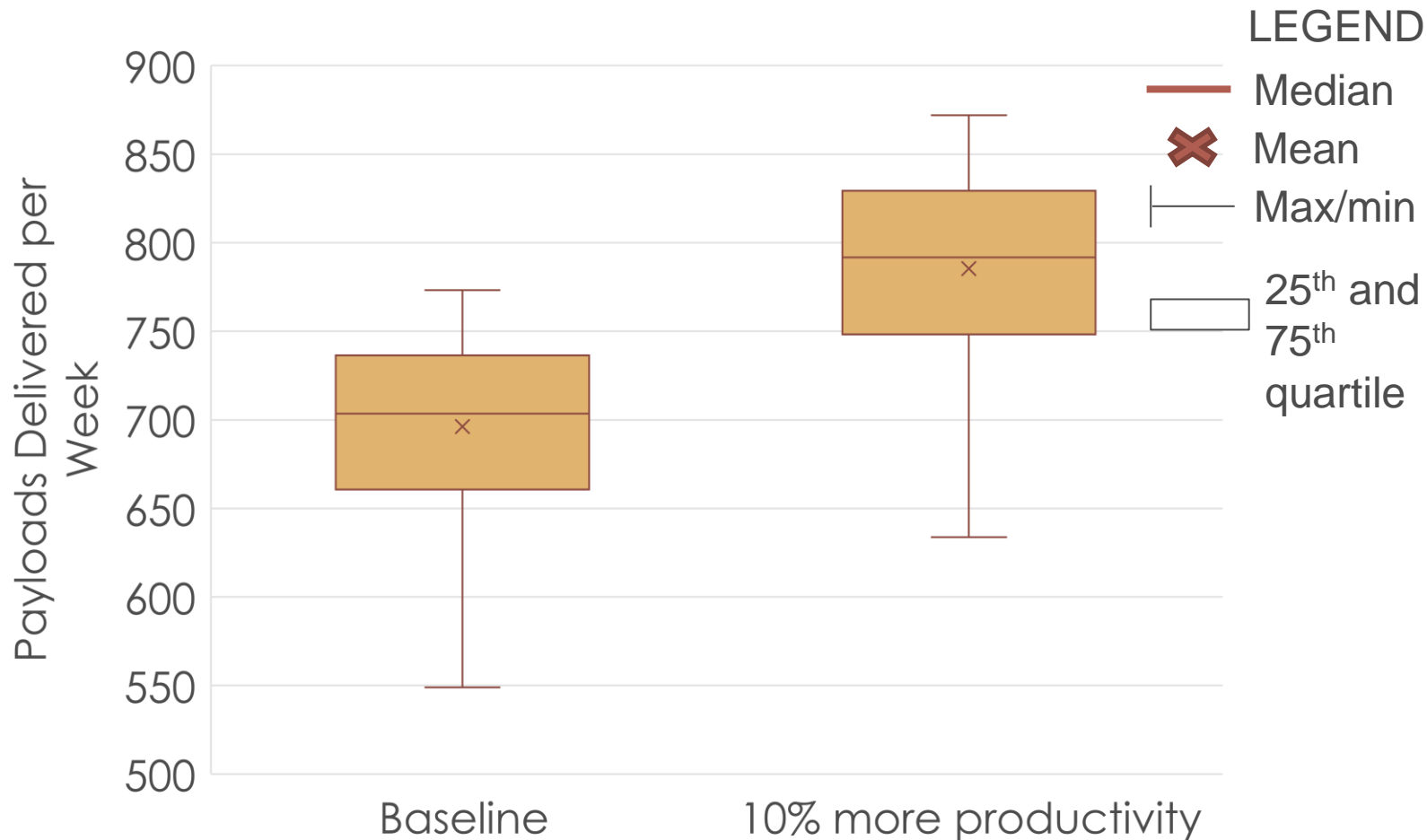


Increasing Retention Provides Significant Gains in Productivity (from experience) and Net Revenues

- Retention
 - Increases productivity from driver experience
 - Reduces idle trucks (for constant hiring rate)
- Every additional week of average retention generates about 1% gain in net revenue
- Increasing new hire tenure by 35% provides the same value as doubling the hiring rate



Technology investments can easily provide positive returns if they impact productivity, recruitment, or retention



A 1% gain in productivity, yields ~1% increase in net revenue.

A plant could invest more than 5% of its expected annual net revenues in new technology for every 1% gain in productivity and still come out ahead.

Assumes 10% real discount rate and technology lifetime of eight years



Unique National CDP Survey Gave Insight on Which Parts of the Job Bring the Most Satisfaction and Dissatisfaction



“Turnover rate has been growing. Drivers used to start as a driver and retire as a driver 40 years later. Now, they want 3-5 years in one role and then a new step in the organization.”

-RMC Vice President

How do you feel about your job?

Love it/Like it
Group



Tell us things that you love about your job and **why?**

“Meh”
Take it or Leave it



Hate it/Dislike it
Group

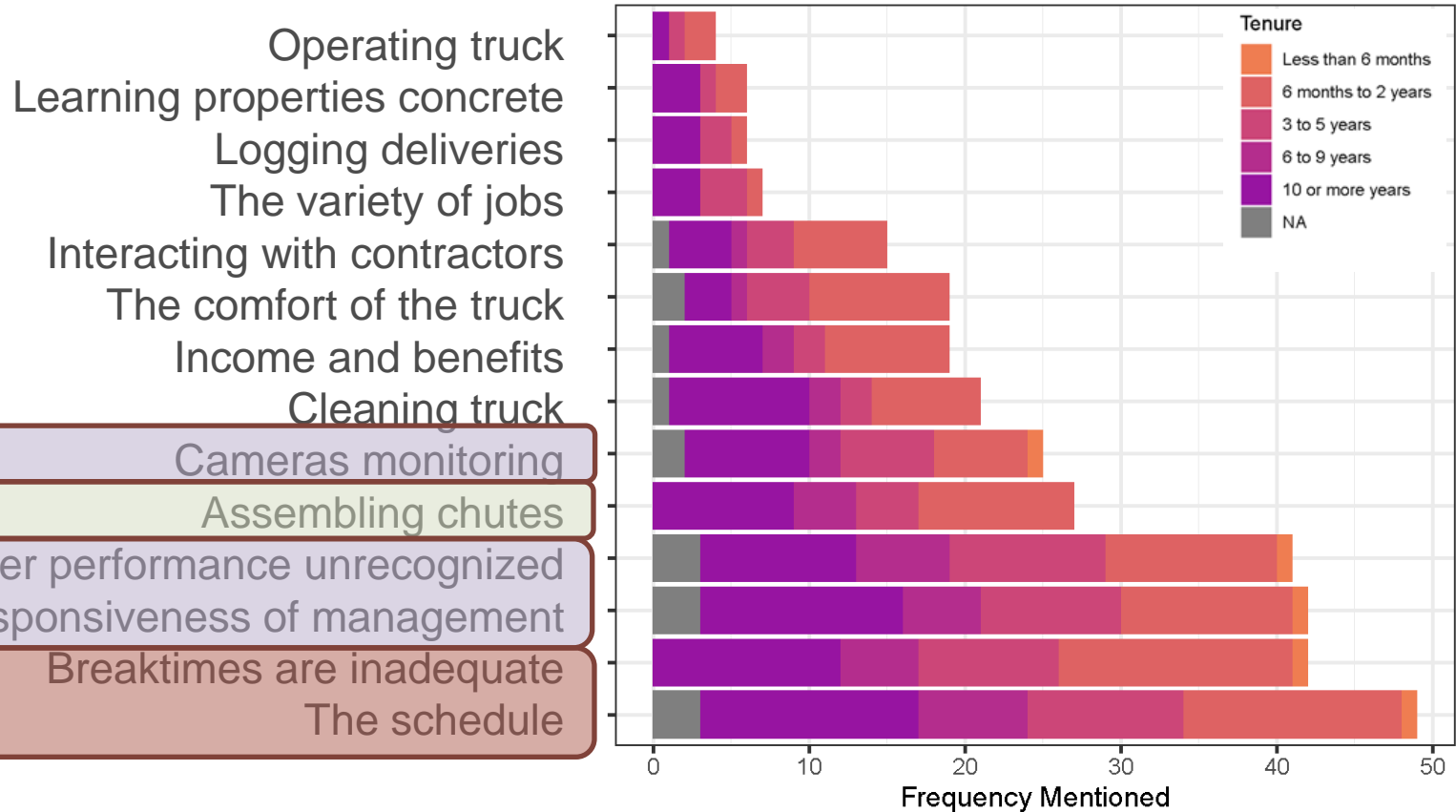


Tell us things that you hate about your job and **how** would your satisfaction change **if this happened?**

- CDP survey on job satisfaction
 - n=439 at 100% completion

To Boost Retention, Address Factors that Contribute the Most to Job Dissatisfaction

Question: Select five things that contribute the most dissatisfaction to your job.



63 Subjects Responding

CDP Schedule

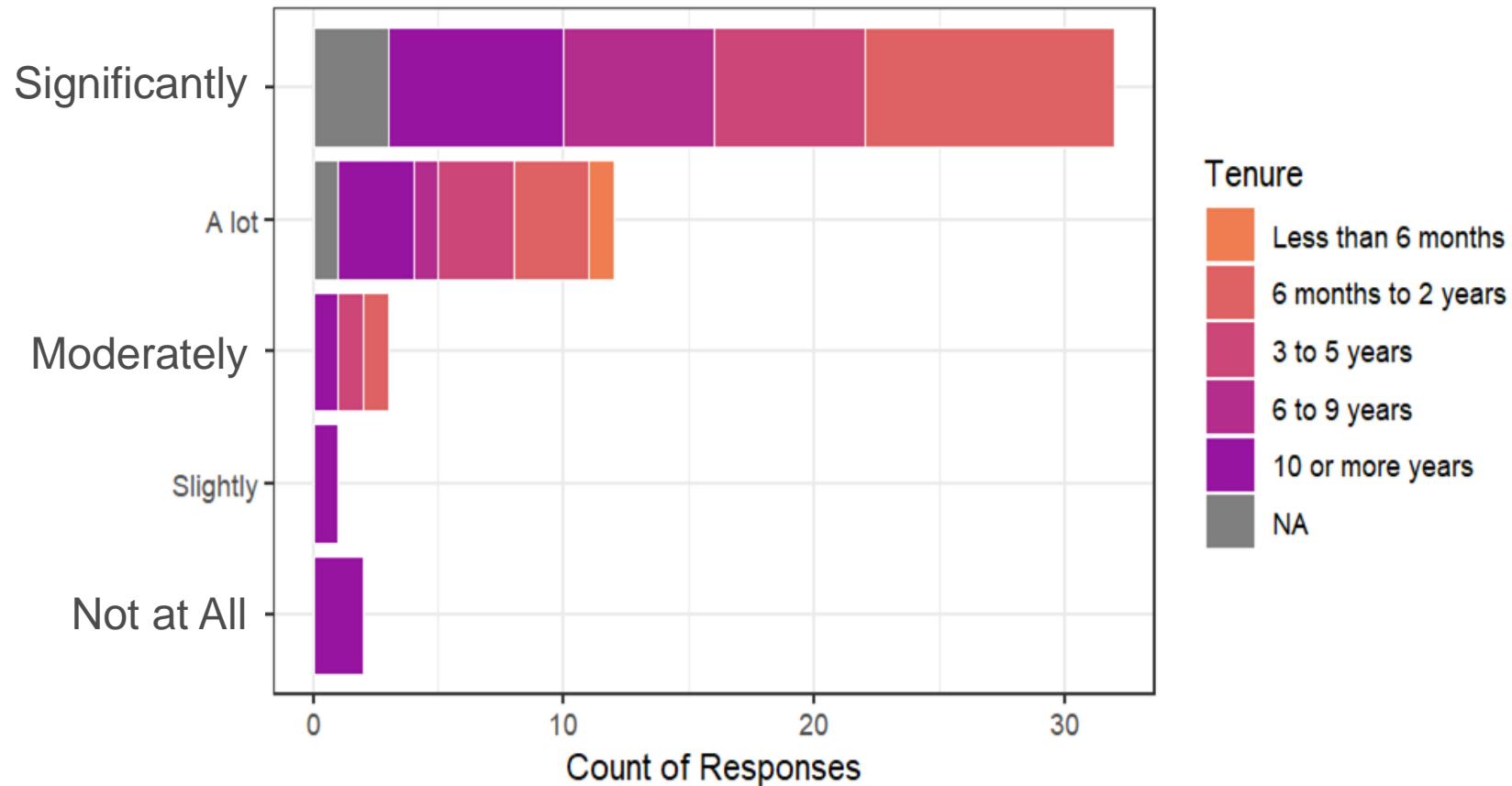
CDP Management

Physical Job Requirements



More Control Over Schedule is Particularly Important to CDP Job Satisfaction

How much would your job satisfaction increase if you had more control over your daily start & stop times?

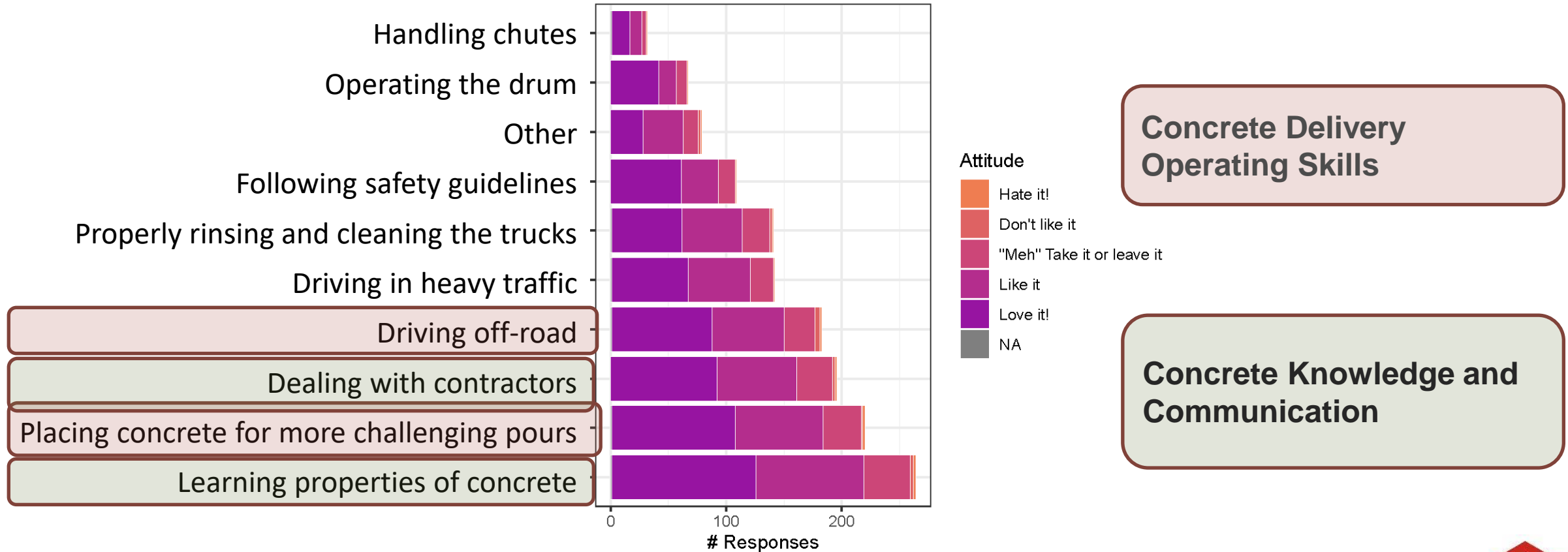


Subjects: 50

The CDPs that indicated “Slightly” or “Not at All” have been drivers for 10+ years

How Can Technology Address These Challenges to Improve Retention Rates for First Year CDPs?

What are the most challenging first-year CDP tasks?



39.6% of full-time CDPs hired in 2021 quit in the same year (NRMCA Survey, 2021).

Responses from the CDPs Underscored Where to Prioritize Efforts

- Greatest Dissatisfaction
 - Scheduling
 - Management
 - Physical requirement



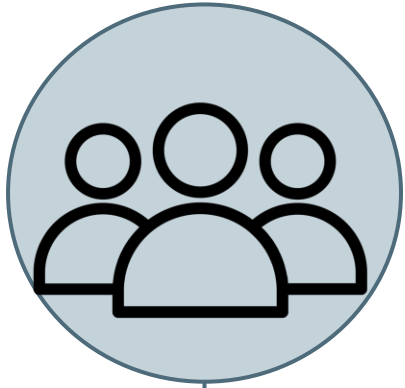
- Challenges for 1st Year CDPs
 - Learning the properties of concrete
 - Challenging placements
 - Dealing with contractors
 - Off-road driving



Recommendations



Identified three majors levers to address challenge



Recruitment

- Increase the candidate pool
- Change perception of the job



Retention

- Reduce first-year challenges
- Enhance careerlong engagement



Driver Productivity

- Reduce non-value add time
- Manage demand

Improving Driver Recruitment Requires... Expanding the Candidate Pool; Increasing Job Appeal

Increase the candidate pool

- Increase access to foreign workers
 - Develop a standardized set of skills
- Expand access to younger workers and drivers without concrete knowledge
 - Develop concrete delivery technician position
- Increase appeal to women
 - Invest in automation to reduce physical effort



Change the perception of the job

- Remove “driver” from job title/description
- Adopt technology into daily tasks



Address Driver Retention Challenges Through Technology and Management Engagement

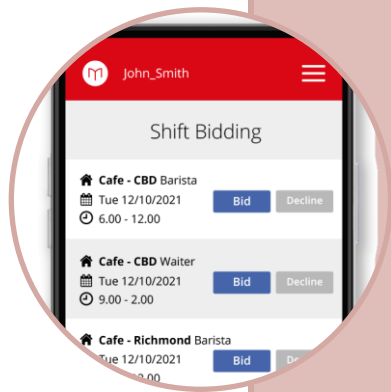
Reduce first year challenges

- Drive pervasive adoption of high quality training
 - Continue to promote standardized training
- Improve learning outcomes from training
 - Virtual reality for training*
 - Safety
 - Challenging driving and placement
 - Concrete properties
 - Gamification of learning outcomes



Enhance careerlong engagement

- Increase driver involvement in scheduling
 - Develop schedule bidding systems
- Increase driver-management engagement
 - Deploy automated, data-driven CDP feedback
 - Develop data-driven predictors of CDP stress
- Clarify career pathway potential
 - Develop structured training for other concrete careers



Technology can make the CDP job more attractive, increase retention, and drive up productivity



Reduce Non-Value Add Time

- Augmented reality to improve efficiency*
- Automation and robot-assist technology*



Driver Productivity



Manage Customer Demand

- Develop tools to predict customer demand and CDP supply
- Enable surge pricing during unfavorable shift times

Additional research and outreach can help address the CDP shortage

- **Understand the value of new solutions**
 - Proof-of-concept bid-for-schedule
 - Case studies on emerging technologies
 - Develop CDP data hub*
- **Create common platform for concrete operations simulation**
 - Explore effects of new solutions on cost and productivity
- **Continue to raise awareness**
 - Engage with media outlets
- **Increase CDP workforce communications**
 - MIT-hosted annual innovation meeting
 - Updates on workforce research
 - Top industry speakers and leading experts
 - Webinar series



Thank You

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