

How AI can help maintenance managers save time in the shop, from recruiting technicians and automating tedious tasks to managing parts and generating more accurate work orders.

By Gregg Wartgow

[ IN VEHICLE ]

Discussions around how artificial intelligence will revolutionize the trucking industry often turn to topics like load optimization, routing, driver safety, and vehicle autonomy. Predictive maintenance also ranks high on the list, since AI can analyze an insane amount of diagnostic and repair information. We go into greater detail on page 14 about that, but how can this advanced AI help shop managers work smarter, not harder?

“The big benefit of AI is that it reduces time to insight,” said Mike Branch, VP of data and analytics at Geotab, a telematics provider that has also developed an AI-powered fleet management platform that does just that.

Now a new form of the technology, generative AI, is at a fleet’s beck and call. It allows you to prompt the program with a question or request, and AI answers in text, image, or even video. Consumer versions may be used to provide a recipe, summarize “War and Peace” in Spanish, or create art. As generative AI evolves, it should be able to help a shop manager calculate budgets or track labor simply by asking.

“That doesn’t mean a maintenance or shop manager can completely do away with spreadsheets, reports, and dashboards,” Branch pointed out. “But when you have a specific bit of data you want, AI is like having a data scientist in your back pocket.”

# AI: THE BODYLESS SHOP ASSISTANT





## CHATGPT VS. TRUCKING EXPERTS

AI-driven, natural language processing (NLP) tools such as ChatGPT from OpenAI and Google Bard are enabling humans to have normal conversations with computers. While AI tools like these are capable of doing many things, using them as a research assistant is a common way to dip your toe into the AI pool.

Many of these NLP tools build their language models by using publicly available information. For instance, OpenAI relies on three sources of information: what's available on the internet, information licenses from third parties, and information their users and human trainers provide. This "training process" not only supplies the AI tool with lots of information, but also allows it to pick up on language patterns so it can become a more proficient communicator.

At times, the response you get from an AI tool is not only impressively fast, but also dead-on accurate. At other times, the response can be a little off. That's why tools like ChatGPT and Bard recommend fact-checking "important" information. But doesn't that defeat the purpose of using an AI tool in the first place, where one of the primary benefits is reducing time to insight?

"With our asset management software, and even a lot of shop management software that's out there, the assumptions are controlled," said Brian Antonellis, senior vice president of fleet operations at Fleet Advantage, an asset management and data analytics firm. "We are taking industry-accepted norms and introducing them to an algorithm, so a fleet can have confidence in the assumptions that are being made."

"While we do get excited about what AI means, we're also cautious about putting the right data into the system," Antonellis continued. "Even today, you don't really know what data and information is in something like ChatGPT. A lot of it is coming from the internet, and that information can be as much as two years old if you're using the free version. So you have to be cautious. The last thing you want to do is pull a query on the wrong data. And I would be really careful about leaning in too strongly on anything technical, unless you have a verified data source and are comfortable with the assumptions being made, and are able to vet them through your OEM."

We asked the free version of ChatGPT a handful of questions a fleet maintenance manager might have, and then compared the responses to what a human expert in the trucking industry had to say. In most cases, ChatGPT's responses were somewhat general, whereas the human industry expert came back with a more refined answer.

Take a look and decide who you'd trust:

[Explain how...](#)

To expand what these pocket assistants can do for fleets, last summer Geotab began beta testing a new AI-driven solution, referred to as Project G, with fleet customers. During the first stage of testing, the AI was only trained on a specific subset of data from Geotab's Data Connector tool, including asset utilization, fuel economy, and idling.

But fleets were asking the AI a lot of questions that required data beyond what Data Connector could provide. Now Geotab has begun incorporating additional telematics data from the vehicle—such as remaining useful oil life, battery condition, and DPF condition—to help maintenance managers gain further insights and improve maintenance scheduling.

This is still like a souped-up predictive maintenance use case. The considerable IQ of available AI solutions can be used for so much more in the shop, really only limited by the users' creativity and imagination. The problem for most managers, though, is finding time to step away to let their imaginations run wild. Fortunately, the AI that exists right now can perform several tedious tasks to help free your mind.

### Technician support

Many jobs will be drastically changed, and some replaced, as AI becomes increasingly embedded in the workforce and is able to do more jobs. In the hands-on vehicle maintenance sector, AI can't replace brakes or change oil, but it can serve as an extra helping hand in the shop. And asking for that help is getting easier.

"The big revolution we're talking about is a shop manager having the ability to interact with an AI machine-learning model by simply typing out a sentence," said Jacob Findlay, co-founder and executive chairman of Fullbay, a heavy-duty repair shop management platform. "And think about a technician having the ability to talk to an AI-powered software to have it create a work order, all while that technician is under a truck."

With onboard components getting more intelligent, and the supply of human labor getting more scarce, this help should be a welcome addition.

"In an industry where there are more trucks on the road but fewer technicians to repair them, we need this type of technology," Findlay noted.

The Fullbay founder tends to get a little excited when talking about the realm of possibilities AI brings to the table. The Fullbay platform's current software functionality ranges from generating estimates and invoices to preventive maintenance tracking and parts inventory management. It also allows shops to generate various reports to help track things like technician efficiency and vehicle cost of ownership. When you think about all of that functionality, there are numerous tasks that could be automated by AI. Additionally, many tasks could be simplified by allowing a well-trained AI tool to retrieve and analyze data. And make no mistake—Fullbay is full of data.

"This puts us in a really good spot to leverage AI [at some point]," Findlay said. "With the vast amount of highly detailed work order and repair information data that's entered into our system, we're in a position to do specialized AI training that is proprietary."

How often should I clean the DPF on my Kenworth truck?



#### CHATGPT:

Cleaning the Diesel Particulate Filter (DPF) in a Kenworth truck depends on various factors like driving conditions, mileage, and manufacturer recommendations. Typically, it's recommended to inspect and potentially clean the DPF every 150,000 to 300,000 miles, but this can vary based on your specific truck model and usage patterns. It's advisable to consult your truck's manual or the manufacturer's guidelines for precise maintenance schedules tailored to your vehicle.



#### PERSON:

Steve Hoke, president of Diesel Emissions Service:

That response is spot on from a manufacturer's point of view. But real-world results would prefer that a DPF be cleaned in the 100K-150K range for the best longevity of the DPF.

**"The big revolution we're talking about is a shop manager having the ability to interact with an AI machine learning model by simply typing out a sentence."**

Jacob Findlay, co-founder and executive chairman of Fullbay

As a hypothetical example, Fullbay's repair history data shows that it's common for a technician to simply swap out a sensor when it's giving them problems, but that doesn't solve the root cause of the problem. Now let's say a technician working in a shop 1,000 miles away does solve the root cause. With AI scanning and analyzing all the repair orders that have gone through the platform, the next technician to encounter this same sensor issue could ask the AI tool what some possible causes are. The AI could suggest what that disparate technician already figured out.

"No human being could ever consume all of that information," Findlay pointed out. "So from that standpoint, AI could end up becoming the best diagnostic tech in a shop."

Until that day comes, a shop manager can already take advantage of several "generic" AI tools to assist them in various aspects of their jobs, such as to quickly research certain information, analyze data, create charts and graphs, write emails, or automate scheduling.

# BENDPAK LIFTS BRING ANY JOB DOWN TO SIZE

BendPak Model  
**PCL-18B-6**  
Portable Column Lift



Certified to meet the  
standards of ANSI/ALI  
ALCTV: 2017

**PCL-18B**



**FULL MOBILITY**



**SIMPLE OPERATION**



**ADJUSTABLE WHEEL FORKS**

Bendpak is the name that fleet operators rely on because they're the toughest lifts on earth. And nowhere is that strength more impressive than on our PCL-18B series portable column lifts. With a lifting capacity of 18,000 pounds for each column and paired configurations ready to accommodate two, four, six or eight axle vehicles, the PCL-18B is ready to service trucks as heavy as 144,000 pounds. From school buses and fire engines, to agricultural vehicles and utility trucks, bendpak continues to make today's tough challenges yesterday's problems. To learn more or to shop now, visit [bendpak.com](http://bendpak.com) or call us at 1-800-253-2363.

1-800-253-2363 • BENDPAK.COM

©2024 BendPak Inc. All rights reserved.

**BendPak**



# AI: THE DIGITAL OFFICE ASSISTANT

Sometimes we all could use help phrasing things with the right balance of cold calculation and empathy, especially when breaking bad news to a customer. We wanted to see if the free version of ChatGPT was up to the task and asked the following question:

Can you write an email telling my customer that their truck repair will be done Thursday afternoon once a backordered part comes in?

Here's what ChatGPT produced:

New message

To

Subject Update on Your Truck Repair

Dear [Customer's Name],

I hope this email finds you well. We appreciate your patience and understanding as we work on repairing your truck. We wanted to provide you with an update on the status of the repair.

Currently, everything is progressing smoothly, and our team is diligently working on resolving the issues with your truck. However, we have encountered a slight delay due to a backordered part that is essential for the completion of the repair.

We want to assure you that we are actively monitoring the situation, and the backordered part is expected to arrive by Thursday morning. As soon as we receive the part, our technicians will immediately proceed with the repair work.

Our goal is to have your truck fully repaired and ready for pickup by Thursday afternoon. We understand the importance of having your vehicle back in a timely manner, and we sincerely apologize for any inconvenience this delay may have caused.

If you have any questions or concerns, please feel free to reach out to us at [Your Contact Information]. We truly appreciate your understanding and cooperation in this matter.

Thank you for choosing our services. We look forward to completing the repair and returning your truck to you in top-notch condition.

Best regards,

[Your Full Name]

[Your Position]

[Your Company Name]

[Your Contact Information]

Send

A

## Scheduling and parts inventory

"Maintenance professionals often rely on their mobile devices to perform day-to-day tasks and reporting," said Evan Welbourne, head of AI and data at Samsara, provider of the Connected Operations Cloud platform that harnesses IoT (internet of things) data to develop actionable insights for fleets. "AI can be used to streamline and simplify these processes by automating particular tasks and surfacing curated workflows for specific employees, cutting out the noise and only providing them with the information they need for a given task, at a given time."

Employee scheduling is another management function where AI tools already exist. A software company called Celayix uses AI machine learning to study past schedules and various rules the user has set up to automatically schedule shifts that meet certain requirements and operational needs.

Parts management is another area where AI can play a beneficial role. Yes, there are already plenty of shop software platforms out there that possess the functionality to track inventory levels and even set reorder points. But AI can more deeply analyze historical usage data along with additional external factors in real-time (i.e., price, supply, and demand) to help determine what the optimum min/max and reorder levels should be at various points throughout the year.

Through image recognition and machine learning, AI can also help maintenance professionals look up parts faster. The user just takes a photo of the part, uploads it to the software, and AI searches for a match. At a point in time when the fleet maintenance industry is losing a lot of tribal knowledge due to an aging workforce, this type of technology will become essential.

In addition to the general types of AI tools just described, there are also some industry-specific

What is the best oil filter for a Detroit DD15 engine?

CHATGPT:

The choice of the best oil filter for a Detroit DD15 engine may vary based on factors like specific model requirements and personal preferences. However, reputable brands such as Fleetguard, Baldwin, and Donaldson are often recommended for DD15 engines due to their quality and compatibility. It's crucial to consult your engine's manual or manufacturer recommendations to ensure you choose an oil filter that meets the required specifications for optimal performance and engine protection.

PERSON:

**Len Copeland, product marketing manager for Detroit**

**Components:** While we acknowledge that AI has become influential technology, we still recommend our own branded oil filters for our engines. All of the recommendations are on our publicly accessible Techlit webpage at [dtnatechlit.com/portal-public/](https://dtnatechlit.com/portal-public/) (search for "Supplemental Oil Filters").

examples of AI being put into action. This is an important development. The real potential of AI lies in industry-specific tools trained on specific data that a maintenance manager can feel comfortable in trusting.

## Automatic VMRS encoding

The TMC's Vehicle Maintenance Reporting Standard (VMRS) codes have been developed to keep dealers, repair shops, and fleets on the same page when a vehicle is being serviced. The challenge is that technicians often fail to assign a VMRS code when servicing a vehicle. That makes it harder for a fleet to understand what's happening in the service bay so it can accurately measure things like M&R costs and TCO.

"We've begun using AI in the VMRS encoding of operations," said Nick Pittinger, director of data services at Decisiv, whose Service Relationship Management (SRM) Ecosystem has more than 7 million assets in operation, along with 5,000 dealers and service providers, and more than 74,000 fleets and asset owners. Needless to say, the Decisiv SRM Ecosystem sees a tsunami of service orders, around 300,000 per month. All of that data is used to develop AI algorithms and machine learning to recognize certain information defined during a service operation, and then encode it with the appropriate VMRS code.

Currently, Decisiv's AI is automating the encoding of the VMRS system-level code (Code Key 31). That enables people downstream of the repair to gain better maintenance insights, and even perform tasks like warranty claim submission. Pittinger said they've been seeing 80-85% accuracy on hundreds of thousands of repair operations per month. That's a huge improvement considering how VMRS codes were only being provided on 5-10% of the repairs when a technician did it manually.

Given this initial success, Pittinger's data team is looking into the automation of additional VMRS codes. A logical next step would be the assembly-level Code Key 32. From there, Decisiv's fleet customers have been asking about things like Code Key 14 "reason for repair" and Code Key 15 "work accomplished."

## Inorganic human resources

Recruiting new technicians has always been a time-consuming

endeavor. It gets even harder when there's a shortage of talent. A company called Whiterail Recruits is finding that a balance of human and artificial intelligence can work in tandem to help solve this problem. It can also make a maintenance manager's life a lot easier.

"A good diesel technician is gold these days," said David Ostrov, head of operations at Whiterail Recruits, a marketing services company that

leverages a unique advertising algorithm and generative AI to more efficiently recruit drivers and technicians. "You need to know how to talk to technicians to really court them."

This is where Whiterail's experience in digital advertising comes into play. Their human talent creates compelling, highly targeted, smartphone-friendly ads for websites, social media, and apps that the typical diesel technician tends

halo

TIRE MANAGEMENT

PRESSURE AUTOMATION & PREDICTIVE MAINTENANCE

Every year, trucking fleets spend billions of dollars manually managing tires, which is the leading cause of asset downtime. In addition, reactive tire management practices lead to chronic tire underinflation and other operational inefficiencies.

Aperia delivers the most comprehensive, accessible tire management platform for commercial fleets worldwide. Halo Tire Management combines tire pressure automation hardware with a machine-learning tire analytics platform. With a million tires under management, the combination enables powerful operational, safety, and environmental improvements for trucks and trailers.

2000+

customers running Halo in broad applications

50B+

Halo miles logged with <0.1% warranty return

ONLY

solution available for medium & heavy duty trucks and trailers

Aperia TECHNOLOGIES

CONTACT OUR TEAM OF EXPERTS TO CUSTOMIZE A TIRE MANAGEMENT PROGRAM FOR YOUR FLEET

[info@aperiatech.com](mailto:info@aperiatech.com) | P: (844) RUN-HALO



### How can I improve efficiency in my truck repair shop?



#### CHATGPT:

There are several things you can do:

- Streamline the repair process
- Employee training
- Utilize technology
- Regularly maintain your repair equipment
- Clear communication
- Set standard operating procedures
- Customer service focus
- Performance monitoring



#### PERSON:

**Jacob Findlay, Fullbay founder and chairman:**

The best thing a shop can do is grab a pencil and blank sheet of paper, and draw out what the repair workflow is today. Identify the areas where time and/or cost tend to get out of control, and find ways to do things more efficiently. Also, be sure to measure technician efficiency, which is invoiced hours divided by total hours worked. Publish the results so the Hawthorne Effect can play out (which says people change behavior when behavior is being evaluated). Once the key metrics and processes are laid out, set some goals and continuously monitor them.



#### PERSON:

**Nick Pittinger, director of data services at Decisiv:**

Streamlining communication between the fleet, shop, and suppliers is one of the best ways to improve efficiency. When communication is consistent and clear, the repair event typically goes much smoother and faster. Leveraging standardized operations will also improve efficiency, and is much better than leaving each technician to figure things out for themselves. Improving workflows by automatically assigning tasks through a software platform will also help save time. Finally, shops should find ways to measure performance, analyze that data to identify bottlenecks, and use it to get a little bit better and faster.

to use. But even here, Whiterail's human talent will often use various AI tools to ask for advice on what the ad should say and to create imagery.

AI starts playing a bigger role when a person clicks on one of those ads. The person is sent to an AI-driven, chat-based hiring platform on a Whiterail recruitment webpage. This is where the automation kicks in.

"You really need someone who is on task with this," said Daniel Ostrov, head of marketing at Whiterail. "They need to be responding to text messages all day, every day, within minutes. It's just not feasible for most diesel repair shops, so we've built an AI tool into our recruiting platform that communicates with candidates instantaneously and even schedules them for appointments."

First, Whiterail's AI chatbot asks some prequalifying questions like years of experience, certifications, if they can pass a background check, etc. "The candidate is literally hitting buttons on their phone to answer the questions," David said. "They don't need to do any typing. They don't need a resume. They're done in 40 seconds."

The communication piece is as important as the convenience factor.

"You have to show some authenticity and relate to a technician, not come off as some kind of bureaucratic recruiter," Daniel said. That's why the Whiterail AI team spent a lot of time training its chatbot on how to converse in a more casual, engaging way. In the early stages, the chatbot's responses were too formal. "We had to spend a lot of time telling it what *not* to do," David said.

Whiterail's AI tool really makes an impact on efficiency once that prequalifying process is complete. It integrates with a variety of common calendar apps to automatically schedule a phone interview. The AI chatbot asks the candidate if they are available during certain timeframes. Once some timeframes are confirmed, the AI scans the calendar of the maintenance manager or other individual who'll be conducting the phone interview to automatically select a time. The chatbot also asks the candidate for their email address and mobile number so appointment reminders can automatically be sent in the lead-up to the interview.

Thus far, Whiterail's AI-driven process has shown some success. According to David, one

**"We are going to lean into AI, make sure we understand it, and figure out what it could do for us and our customers. Maybe 10 or 15 years from now, we'll be able to get AI into a system specifically built where all of this predictive modeling is done."**

Brian Antonellis, senior vice president of fleet operations, Fleet Advantage

of the companies that has utilized the system, Champion FleetCare, hired three qualified diesel technicians in 30 days. More importantly, the AI-driven process helped generate 25 applicants, 12 of whom were qualified and 11 of whom showed up for the phone interview. And the maintenance manager spent considerably less time chasing down those applicants because AI did a lot of the tedious work for him.

### The need for more data and trust

In addition to automation, AI's biggest strength is its ability to analyze data and quickly provide insights. In that respect, could a fleet maintenance team already be in a pretty good spot with the technologies they are already using? After all, some software platforms already do an excellent

job of retrieving and presenting vital information in easy-to-use dashboards and reports.

"A maintenance manager typically has 500 things to do a day, but only has time for 400," said Brian Antonellis, senior vice president of fleet operations at Fleet Advantage. "It's beneficial to be able to go into one dashboard through one portal and quickly determine the four or five items they need to act on right away, as they can with our ATLAAS platform."

Fleet Advantage provides asset management services to some of the largest fleets in the industry. They leverage the knowledge and intuition of their team of industry experts to analyze multiple streams of vehicle data, allowing them to devise a plan to help a fleet achieve the lowest TCO for each vehicle. It's an extremely data-driven process—which seems perfect for generative AI.

"Could AI do all of that kind of analysis for us? It's a good question," Antonellis said. "We are certainly not going to lean away from it. We are going to lean into AI, make sure we understand it, and figure out what it could do for us and our customers."

"Maybe 10 or 15 years from now, we'll be able to get AI into a system specifically built where all of this predictive modeling is done," he continued. "But we want to make sure we don't go too fast. We're protective of our customers' information, and we want to make sure the analytics we're making are the right ones."

The reality is that the pace and volume of data isn't slowing down. In many respects, it's already too much for a human being to handle.

"As more information flows into an ecosystem like ours, we must continue searching for ways to leverage it to the benefit of our customers," Decisiv's Pittinger said. "We have to remember, AI technology is still in a nascent state. Everyone is hyping it to death, but it's not to the point where the typical fleet maintenance manager will be actively using it. It's really up to companies like ours to incorporate AI into our existing technology set so we can deliver even more value to fleets and dealers."

Even though the technology is new, all shop leaders should start to familiarize themselves with how using AI as a digital "right-hand man" can give them a leg up, especially those who heavily rely on data coming into the shop.

"Maintenance managers who are already looking at reports and dashboards of their telematics

data will benefit from the speed of information AI can provide," Geotab's Branch added.

And for those who've felt a little overwhelmed by the onslaught of data coming at them, AI can make it easier to get at the precise information they're looking for. Any leader knows you don't always need to know the answer; you just need to know who can get it. And in more and more cases, this will be the on-call data scientist waiting on

your smart device or office computer.

With so much emphasis on helping drive vehicle uptime, AI could be just the tool to provide managers with the downtime from the day-to-day grind to use their own human intelligence, for which there still is no substitute, to help improve the shop. ■

For related content go to [FleetMaintenance.com/shop-operations](https://FleetMaintenance.com/shop-operations)



## Your Shop Equipment Solution



Experience  
The Gray  
Difference

**AT GRAY MANUFACTURING, WE DON'T JUST BUILD JACKS AND TRUCK LIFTS,** we build solutions that equip you for more efficient repairs and maintenance. From the exceptional quality of our products to our focus on assisting customers after the sale, every part of our business is designed to serve you. That's what makes Gray Manufacturing products the best in the industry.

You might find that you pay a little more for our products, but they're safe, dependable and long-lasting. Is it worth it? Our customers say it is.

“

We have several Gray Products. When making purchasing decisions, I pay close attention to service life versus cost. I can't figure replacement cost for Gray because, for over ten years, I haven't replaced anything.”

- Ryan K.

“

Gray Manufacturing is the only truck lift system I truly considered. The customer service is second to none, and the quality of their products is what you would expect from a U.S. manufacturer!”

- Mike D.

## STREAMLINE RECRUITMENT WITH PRECISION

### Step 1

#### Geo-targeted advertising

Strategically target candidates by location and occupation, advertising only to qualified individuals within driving distance of your business.

### Step 2

#### Branded recruitment website

The ad leads candidates to a branded recruitment webpage that sells the job and your company.

### Step 3

#### Chat-based job application

A 40-second chat-based job application replaces the need for a résumé.

### Step 4

#### AI recruiter contact and scheduling

The AI recruiter qualifies, contacts, and schedules each candidate for interviews automatically.

### Step 5

#### AI interview reminders and final hiring

AI-triggered reminders ensure applicants show up for interviews, with a 90% success rate.

Source: Whiterail