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WORKSHOP: Driverless Cars Will Come Before Driverless Trucks

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Introduction:

The trucking industry today faces a persistent shortage of qualified drivers, and this labor challenge is expected to worsen in the years ahead as baby boomers retire and the industry struggles to attract millennials. Some have argued that technologies such as automated driving could make the profession more appealing to the younger generation. That's important, because human drivers will likely remain essential to trucking for many years to come, meaning that new recruits will be needed to keep America's freight moving.

While automation could someday give rise to unmanned trucks, it will not be an instant panacea for the driver shortage, at least in the short to medium term. However, this technology could soon change the nature of the job. The truck driver will likely become less of a vehicle operator and more of a systems manager and logistics expert as the driving task becomes increasingly automated, freeing the driver to perform other work tasks such as planning, regulatory compliance and customer service, or simply relax in the sleeper watching television, reading or checking social media as the truck rolls down the highway.

Exercise 1: New Age Driver Recruiter:

Divide your group into two groups. Half of you will be Recruiting Managers at a trucking company, the other half will be Millennial jobseekers applying for a job as "Autopilot" Trucking Operators (truck drivers). Each group will solve the following problem, then reconvene and discuss their results and expectations.

You are a Recruiting Manager at a large fleet that recently invested in new trucks equipped with an "autopilot" system that automates highway driving. Now you need to attract some new recruits to operate these trucks, which still must be driven manually on urban and suburban roads and at loading docks.

Develop a one-paragraph job ad geared toward millennial candidates. Here are some questions to consider:

1. How do you promote the appeal of working in a high-tech truck cab environment while at the same time addressing perceptions that the job could soon be replaced by a computer?

2. What tasks do you want to assign to these drivers while the truck operates autonomously on the highway? Or do you want to promote this as "free time" for the driver?

3. Is the "truck driver" job title now outdated? What new title will you use to describe this job?

4. Also think about how the truck driving profession is often portrayed in popular media. What stereotypes do you want to subvert?

You are a Millennial seeking employment as a Semi-Autonomous Truck Operator (truck driver)
You might be experienced or you might be very new to this industry and curious about launching a promising career in a new technology sector.

The truck's "autopilot" can now handle the majority of driving time on highways, but job applicants will still need to operate the vehicle on the urban and suburban roads near pickup and dropoff locations. Develop a resume and/or brief bio that outlines your experience that would make you the perfect candidate for this job. Here are some questions to consider:

1. What type of technical education will you need to have in order to secure this type of "new truck driver" job that will give you the competitive edge.
2. How has your job experience prepared you to work by yourself, for long stretches of time, on the road? What will you do with all of that free time if you don't have to drive?
3. How much do you know about, trust, and work with Artificial Intelligence technologies? What past experience do you have that would prepare you for working with autonomous vehicles? Do you have experience working with AI that makes life-and-death decisions without you?
4. As technology advances, trucking companies will be able to automate more and more of the driving task over time, which could mean that drivers will someday be phased out entirely. What demands would you make of your employer to ensure that you have some semblance of security or support if that happens?
5. What sort of upskilling would you expect your potential employer to provide to you so that you can stay competitive and relevant in this industry?

EXERCISE 2: Who's Driving This Thing? The Role of the Self-Driving Software Developer

The vast majority of highway driving time on a typical trip is straightforward and relatively simple to automate. The self-driving truck simply travels at a safe following distance, stays within its lanes and brakes if necessary. The real challenge comes into play when something unusual or unforeseen happens on the road. Developers of self-driving systems will need to decide how the truck should react in a multitude of "use cases" – specific driving situations the vehicle might encounter on the road.

Self-Driving Software Developer

As automated driving systems evolve in the years ahead, there will be a period where the truck can drive itself only under certain conditions while continuing to rely on the human operator to drive at other times. During this stage of development, the "handoff" of control from the machine back to the human driver will be an important focal point for developers.

Early self-driving trucks likely will be able to travel in an autopilot mode on open highways, but will remain dependent on a human driver while on urban and suburban roads with intersections and cross traffic. In the earliest stages, the human driver may be required to monitor the vehicle's progress even while the self-driving system is in control.

In this scenario, a self-driving truck with this level of capability travels down the highway in autopilot mode. The exit ramp to the truck's destination is approaching, meaning that the human driver must take over control of the vehicle, but the driver does not respond to in-cab audible alerts and seat vibrations. The truck isn't equipped to drive itself on the roads off of the exit.

1. How do you program the self-driving system to respond when the human driver fails to retake the wheel?
2. Where should the truck go and what should it do?
3. What other technologies could improve safety during transfers of vehicle control from software to human?