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Trust Quests – Open Call		Trust
2023 at Trust		Trust
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Moving Castles Wiki ↗		GVN908, ARB
0x005 Report ::: The Revolution Will Not Be Tokenised ↗	Wassim Z. Alsindi, 0x Salon	
Moving Castles: Modular and Portable Multiplayer Miniverses		GVN908, ARB
The Trucking and Labour Research Group: Results and Learnings		Trust
A Glimpse of the Hydra		Trust

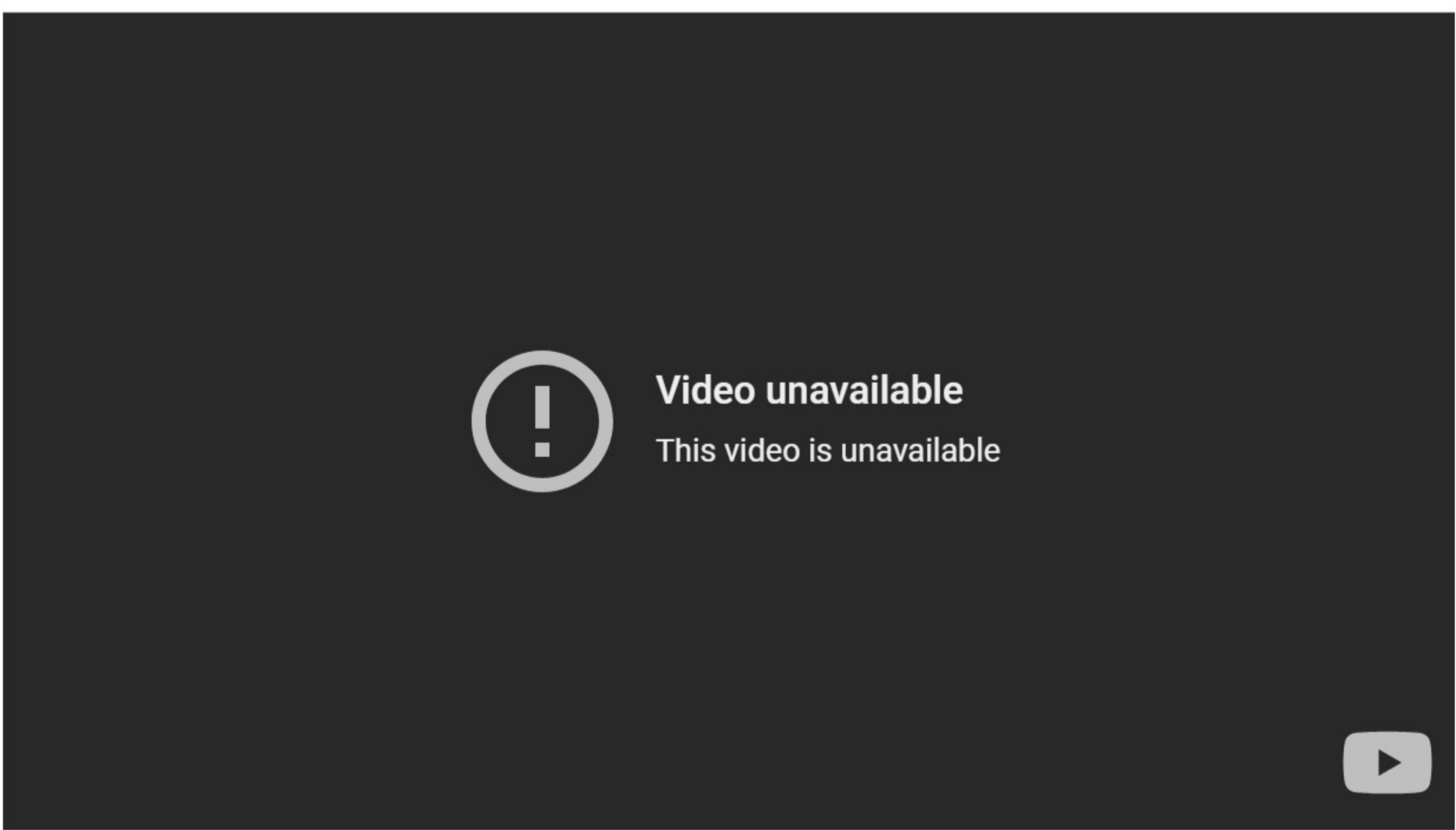
# Humans-In-The-Lacunae: An AI Driver's License and Digital Vehicle Registration

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The automation of trucking generates new opportunities and challenges for environmental, labour, and innovation agendas. However, the lack of digital connection poses an obstacle to the realisation of beneficial outcomes. We propose an AI Driver’s License (AI-DL) and Digital Vehicle Registration (DVR) as a regulatory mechanism to connect vehicles, drivers, and infrastructures. This paper discusses the potential of this digital machine identity on AV policy and regulation.

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Stephanie Sherman and Jeremiah Dittmar outline their proposal for an AI driver’s license and digital vehicle registration.

## The Challenge

The automation of trucking is typically viewed as incompatible with pro-labour positions. However, the automation of trucking has the potential to generate mutually beneficial opportunities for labour, environmental, and innovation agendas. A key obstacle to the realisation of these opportunities is the current lack of digital connection between vehicles, drivers, and infrastructures. We propose an AI Driver’s License (AI-DL) and Digital Vehicle Registration (DVR) to establish this connection. An AI-DL and DVR would enable pricing, protection, and planning measures that could promote decarbonization, account for the location and time of workers across jurisdictions, and provide information for infrastructure development. An AI-DL and DVR could be mobilized as a regulatory mechanism in support of a more holistically co-efficient ground traffic logistics.

## Probable Automations

The rise of automation is expected to transform the trucking industry and transport logistics. Most anticipated is the decline of long-haul truck driving as a primarily human occupation. This will shift the relationships between manufacturers, drivers, and owners, while complementary changes in infrastructure will accelerate automation and electrification. The safety and liability challenges and opportunities posed by these transitions will be key factors in shaping their development trajectories.

### Labor

It is widely anticipated that automation will drive down the demand for human labour, particularly in the trucking and transport sector. Yet the quest for fully autonomous driving has confronted an ever-receding horizon, nestling into the ‘uncanny valley of automation’ in which semi-autonomous technology provides only partial robotic control. The transitions towards automated trucking are already more protracted than often imagined, and the complexities of the transition are likely to continue.

In the shorter term, it is probable that human driving will first shift away from highway spaces, as these more predictable spaces are better suited for machine navigation than complex urban areas. As driving jobs trend towards supervision and co-piloting, vehicles will be increasingly teleoperated, controlled in part by remote drivers, often in locations far from the driving robot, and with potentially outsourced workers paid in another jurisdiction. Anticipating automation and recognising the toll of long-haul driving on physical and mental health, fewer young workers are pursuing truck driving as occupation. Labour scarcity is driving automation as much as automation is driving this scarcity.

The past century provides suggestive if inconclusive precedents. Technological change in advanced capitalist economies throughout the 20th Century did not reduce overall employment. The automatic teller machine (ATM) moved human tellers out of simple computational tasks, but did not lead to a reduction in the number of overall bank employees. The motor car led to a reduction in equine occupations, but also to a dramatic expansion in work associated with new motoring technologies. Today, TuSimple, a trucking company based in San Diego and Beijing, already operates semi-autonomous trucks on highways, employing two human supervisors in the cab for technological testing and operation. Policy and economic designs certainly need to support laborers who will get lost in the transition, but the development of automated vehicles may well increase the demand for labour in transportation services overall.

The effects of the coming wave of automation could transform work in unprecedented ways. If increased automation and general purpose AI does displace workers en masse, the answer to the question “what is to be done?” will require solutions that extend beyond a particular sector. If automation fundamentally transforms the labour market, economy-wide interventions like re-skilling and re-education, robot taxes, UBI and UBS will be required. Legitimate concerns over trucker job loss can easily become intertwined with romanticisms for the open road, like cruising, CB radio and trucker speed. Attachment to existing low-skilled trucking jobs is not the solution; rather we need to intentionally design mechanisms and programs for education, regulation, and resource distribution that account for the economic and ecological aims of an automated age.

### Vehicles

Expanded automation will shift the dynamics of vehicle manufacturing, maintenance, logistics management, and ownership. As trucks become sensing and decision-making machines, they will require new hardware and software that enable communication and coordinated movement across the IoV (Internet-of-Vehicles). Software and hardware development might well become more integrated as required interfaces change. Rather than traveling as independent vehicles, trucks will likely travel in platoons; fleets of synchronized, networked vehicles occupy less highway space and reduce carbon emissions by limiting wind resistance and optimizing speeds. As trucks come to work more like trains, a human “conductor” or “manager” of such fleets might provide forms of management and technical supervision. Meanwhile, the ownership and leasing of fleets could shift away from the current model of individual owner-operators towards larger organizations as computational requirements increase. The prolific data produced as trucks open their interiors and