

STUDY GUIDE



Dear delegates,

I welcome you to the Committee for Legalisation of Banned Technologies, being simulated at VITTUC 2016.

I believe that in status quo, the world we live in is one where new technologies are being developed and patented each day; where someone in some corner of the world is always trying to solve problems that confront humanity, using technology. But the questions that all of us need to answer are whether we can trust it, is it safe enough and the bigger question of whether it can ever be safe enough; to be traded off against the benefits that it promises us.

This is where this committee steps in. We, as diplomats need to discuss these issues on behalf of our people, speak for them, where our actions will directly affect them.

And the agenda at hand is a very relevant one- whether self driving cars should be legalised. In the wake of Google being successfully being able to develop and demonstrate self driving cars, it is not a far fetched dream anymore; it is a reality. It is promising us benefits of lesser number of accidents, greater safety for the majority of the population. But it also confronts us with a very important question- are we ready for it? Are we capable of legislating on it?

And the basic weapon which will arm you to be successfully able to answer these questions is common sense. To think why as a member of the global order you would want or not want such a technology. What kind of reservations could somebody possibly have about such a technology? And you will find yourself answering the bigger and basic questions of this agenda.

But the significance of this agenda, I believe, is greater than this simplistic view. With new technologies being developed each day, we as the CLBT also need to take into consideration tertiary consequences of making a call on the legalisation of self driving cars. Does it have any effect on the incentive structure in R&D

departments and the innovation arena? If yes, then for the better or for the worse.

The study guide that we have prepared gives you a context and the relevant issues that need to be answered or at least deliberated upon in the committee. But I would like to stress, that it will only be a starting point to a hopefully more comprehensive research. But moreover the study guide has been framed to give the delegates enough flexibility and room to tackle issues that they might feel to be equally or more relevant.

With this note, I look forward to moderate and chair two days of a great, engaging, and a well researched committee.

All the very best!

Regards,
Shantanu Bariar
Chairperson

Vedang Chokhani
Vice Chairperson

I. An Introduction to the Committee

Committee for Legalisation of Banned Technologies has a rather essential role to play in status quo.

Firstly, new and new players are coming up with new technologies to solve the problems that we collectively face. But secondly, the extent of globalisation and the type of interconnectedness that exists in the current world order is huge. Globalisation not only with internet and travel but also in terms of multinational corporations and trading across oceans.

Which is why any call that a country might make in legalising a technology can and will affect the entire populous of the planet.

The Committee for Legalisation of Banned Technology not only gives us the platform to discuss on issues of concern in this respect but also vote on them as, on a global level because of the ways in each actor's decision affects the other.

But the most important thing that this committee has to its merit is the flexibility given to delegates to argue and discuss what they want within the agenda that has been carefully chosen.

The mandate of this committee basically assigns us two important tasks:

- a. to vote on legalising or banning certain technologies
- b. be the key actors in framing the policy and legislation required post-legalisation of this technology

II. Basic Context of the Agenda at hand

History

Experiments have been conducted on automating cars since at least the 1920s when Houdina Radio Control demonstrated the radio-controlled driverless car "linrrican Wonder" on New York City streets. The linrrican Wonder was a 1926 Chandler that was equipped with a transmitting antenna on the tonneau and was operated by a second car that followed it and sent out radio impulses, which were caught by the transmitting antennae.

Promising trials took place during the 1950s and throughout the 1960s, General Motors showcased the Firebirds, a series of experimental cars that were described to have an electronic guide system that could rush it over an automatic highway while the driver relaxes.

The first self-sufficient and truly autonomous cars appeared in the 1980s, with Carnegie Mellon University's Navlab and ALV projects in 1984 and Mercedes-Benz and Bundeswehr University Munich's EUREKA Prometheus Project in 1987. In May 1998, Toyota became the first to introduce an Adaptive Cruise Control (ACC) system on a production vehicle when it unveiled a laser-based system for its Progres compact luxury sedan, which it sold in Japan.

Present

Since the 2000's, numerous major companies and research organizations have developed working prototype autonomous vehicles, including Mercedes-Benz, General Motors, Continental Automotive Systems and so on. In July 2013, Vislab demonstrated BRAiVE, a vehicle that moved autonomously on a mixed traffic route open to public traffic

Many major automotive manufacturers, including General Motors, Ford, Mercedes Benz, Volkswagen, Audi, Nissan, Toyota, BMW, and Volvo, are testing driverless car systems as well.

In 2015 Virginia will join the four states Nevada, Florida, California, and Michigan together with Washington, D.C. in allowing the testing of fully autonomous cars on public roads.

In Europe, cities in Belgium, France, Italy and the UK are planning to operate transport systems for driverless cars, and Germany, the Netherlands, and Spain have allowed testing robotic cars in traffic. The ParkShuttle, a driverless public road transport system, became operational in the Netherlands in the early 2000s.

In 2015, the UK Government launched public trials of the LUTZ Pathfinder driverless pod in Milton Keynes. Since Summer 2015 the French government allowed Peugeot-Citroen to make trials in real conditions in the Paris area. The experiments will be extended to other French cities by 2016. The alliance between the French companies THALES and is also testing its own driverless car system.

There are two leading philosophies about how to build a self-driving car, and across the technology and auto-making sectors, there's disagreement about whether these approaches are complementary or in tension with one another.

The first approach favored by Tesla and by most legacy car companies, is based on the idea that vehicles ought to incrementally add driver-assisting technologies so that safety improves and humans eventually do less of the actual driving over time. Those features include advanced cruise control that can steer in certain environments, and functionalities like the Mercedes-Benz S-Class "traffic jam assist," which trains the car to automatically follow the pace of traffic ahead at speeds under 37 miles per hour. Eventually, the thinking goes, all those stepwise technologies will yield a fully autonomous vehicle.

The second approach, led by Google, is that driverless cars must be built as fully autonomous from the start. Those who favor this strategy, known as a “Level 4” approach to automation, say it makes the most sense to build a car that can perform all safety-critical driving functions so that the only thing a human has to do is enter the vehicle and tell it where to go. A vehicle of this nature wouldn’t need a steering wheel or brakes. It could start with a button. The passengers could take a nap, read a book, and otherwise disengage from the act of getting from here to there. This is the image of a self-driving car that’s most popular in wider culture, but it’s not the car that most companies are focused on building first.

Legislation and Government Initiatives

1. USA

In 1991, the United States Congress passed the ISTEA Transportation Authorization bill, which instructed US Department of Transportation to demonstrate an automated vehicle and highway system by 1997." The Federal Highway Administration took on this task, first with a series of Precursor Systems Analyses and then by establishing the National Automated Highway System Consortium (NAHSC). This cost-shared project was led by FHWA and General Motors, with Caltrans, Delco, Parsons Brinkerhoff, Bechtel, UC-Berkeley, Carnegie Mellon University, and Lockheed Martin as additional partners.

In June 2011, the Nevada Legislature passed a law to authorize the use of autonomous cars. Nevada thus became the first jurisdiction in the world where autonomous vehicles might be legally operated on public roads. According to the law, the Nevada Department of Motor Vehicles (NDMV) is responsible for setting safety and performance standards and the agency is responsible for designating areas where autonomous cars may be tested. These regulations required a person behind the wheel and one in the passenger’s seat during tests. Google supported this legislation in an effort to legally conduct further testing of its Google driverless car.

The National Highway Traffic Safety Administration (NHTSA) has proposed a formal classification system for automated cars:

- Level 0: The driver completely controls the vehicle at all times.
- Level 1: Individual vehicle controls are automated, such as electronic stability control or automatic braking.
- Level 2: At least two controls can be automated in unison, such as adaptive cruise control in combination with lane keeping. Example: Tesla Model S
- Level 3: The driver can fully cede control of all safety-critical functions in certain conditions. The car senses when conditions require the driver to retake control and provides a "sufficiently comfortable transition time" for the driver to do so.
- Level 4: The vehicle performs all safety-critical functions for the entire trip, with the driver not expected to control the vehicle at any time. As this vehicle would control all functions from start to stop, including all parking functions, it could include unoccupied cars.

The US Government also funded three military efforts known as Demo I (US Army), Demo II (DARPA), and Demo III (US Army). Demo III (2001) demonstrated the ability of unmanned ground vehicles to navigate miles of difficult off-road terrain. In the first Grand Challenge held in March of 2004, DARPA (the Defense Advanced Research Projects Agency) offered a \$1 million prize to any team of robotic engineers, which could create an autonomous car capable of finishing a 150-mile course in the Mojave Desert. While In October of 2005, the second DARPA Grand Challenge was again held in a desert environment. Both challenges however, had poor performance turnouts

Finally, in November 2007, DARPA again sponsored Grand Challenge III, in which a 2007 Chevy Tahoe autonomous car from Carnegie Mellon University earned the 1st place. Prize competitions as DARPA Grand Challenges gave students and researchers an opportunity to research a project on autonomous cars to reduce the burden of transportation problems such as traffic congestion and traffic accidents that increasingly exist on many urban residents.

2. Europe

In 2013, the government of the United Kingdom permitted the testing of autonomous cars on public roads. Prior to this, all testing of robotic vehicles in the UK had been conducted on private property.

In 2014 the Government of France announced that testing of autonomous cars on public roads would be allowed in 2015. 2000 km of road would be opened through the national territory, especially in Bordeaux, in Isère, Île-de-France and Strasbourg. At the 2015 ITS World Congress, a conference dedicated to intelligent transport systems, the very first demonstration of autonomous vehicles on open road in France was carried out in Bordeaux in early October 2015.

In spring of 2015, the Federal Department of Environment, Transport, Energy and Communications in Switzerland, short UVEK, allowed Swisscom to test a driverless Volkswagen Passat on the streets of Zurich.

Potential Benefits

- In comparison to the myriad of bad behaviour a driver might exhibit behind the wheel, a computer would take a lot of danger out of the equation entirely.
- There are no opportunities for a computer to be "distracted", which is a leading cause of accidents in the United States at present.
- Although it's not clear to what extent lives would be saved, it's obvious that human driven cars come at a very high cost in terms of danger.
- The U.S. Department of Transportation actually assigns a value to each human life: \$9.2 million. Therefore, there would be a significant cost savings in many different venues like insurance costs and healthcare costs associated with accident recovery alone.
- Self-driving cars in large number participate in a behaviour known as "platooning", which would significantly improve traffic conditions and congestion. This would help to reduce commute times for drivers in high-traffic areas but also to maximize on gasoline usage.

- Disabled individuals, who have to rely on public transportation or assistance from others to get around, could reap the benefits of self-driving cars with new freedom and enhanced mobility.
- Companies are always interested in new product development and taking the industry forward by a step, as indicated by the seven companies who requested permits for self-driving car development in California alone.
- Massive savings could be recouped from being spent on older mass transit projects like trains.
- Police officer focus could be shifted from writing traffic tickets and handling accidents to managing other, more serious crimes.

Potential obstacles

In spite of the various benefits to increased vehicle automation, some foreseeable challenges persist:

- Liability placed on manufacturer of device and/or software driving the vehicle.
- Implementation of legal framework and establishment of government regulations for self-driving cars.
- Loss of driving-related jobs. Resistance from professional drivers and unions who perceive job losses.
- Loss of privacy. Sharing of information through V2V (Vehicle to Vehicle) and V2I (Vehicle to Infrastructure) protocols.
- Ethical problems in situations where an autonomous car's software is forced during an unavoidable crash to choose between multiple harmful courses of action.
- Software reliability and Cost Factor
- A car's computer could potentially be compromised, as could a communication system between cars by disrupting camera sensors, GPS spoofing and/or weather irregularities.
- Requirement of High Precision Mapping systems
- Current road infrastructure may need changes for autonomous cars to function optimally.

[Wikipedia was used as reference for this section]

III. Why are certain technologies and self driving cars in specific banned?

A lot of technologies that are developed often don't see their day in the market for a long time because they are not legalised immediately. The people and governments often have qualms regarding new technologies that aim to solve certain problems. And examples of such technologies are robots carrying out surgeries without the doctor. The medical community, the patients and the government had a lot of reservations regarding it and it took years for it to be legalised despite the benefits it offered.

The possible reasons why this often happens are:

1. Fear:

There is often fear in the people regarding any new technology. The question that often prevents them from accepting it is- if they can be trusted. People often can't reconcile with the idea of a human not doing certain tasks of responsibility. Tasks where dynamic and ad hoc decision making is required. Tasks where our lives might be at stake. The human mind intuitively seems more capable than a pre programmed bot acting in the seat of power. Ex. auto pilot, robotic surgery or self driving cars.

The second type of fear people have is regarding the safety of this technology. Is it safe to use it, or are we the experimental batch for this technology? What if it goes haywire, it is an electronic equipment after all. But the question that then needs to be answered is two fold- firstly, are people that rational or great decision makers as we attribute to them, or is it just our fear speaking, but secondly can any technology be "safe enough" for people to believe in it? Or do we need to go forward with it at some point, by simply weighing the harms against the benefits? Humans are imperfect and cause accidents too, why this fear towards computer technology? Questions one needs to think on.

Regarding self driving cars, people have a fear whether they can trust a computer with their lives. At times the car might have to make a decision in the split of a second which can either prevent or lead to an accident, and people are fearful of trusting a computer to make that decision over themselves.

But secondly because it has never been demonstrated on a large enough platform, and has often been developed and seen behind closed doors, people do not know whether it is safe enough to actually run on city roads. And the people who think this way are more likely to place their bets on themselves to be more capable than a computer.

2. Legislation:

The second reason, that is from the perspective of policy making, also contributes to the ban of these technologies. Often, it is really hard to legislate on these new technologies, especially when we realise that they are not human but machines and computers. Policy makers are often faced with certain moral aspects of decision and policy making with respect to these technologies.

This includes questions like who will be responsible for a mishap or an accident in the case that it happens. With respect to surgeon bots, who will take the responsibility of a patient dying while being operated by it- the manufacturer, the hospital or the doctor incharge. Which raises a fundamental question in our minds- even if this technology has benefits for us, are we ready for it?

These reasons stop us from accepting and legalising these new technologies specially those with computers and artificial intelligence having a greater role and autonomy than experts of their fields.

On self driving cars, the hard decisions that a policy maker might have to take, and this will be discussed at length in a further sections are:

- a. Does the car prioritise saving more lives if accident is imminent?
- b. Should people be given an overriding power?
- c. Who can be held responsible for any accident, the company and even within it the programmer or somebody else?

Because people and policy makers have a reason to believe that we are not ready to take these decisions right now or that the people might not be on the same page as such regarding it, they feel it better to delay the legalisation of a technology that might have a wealth of benefits in store.

IV. Factors while legalising banned technologies and self driving cars

1. Problem-Solution match:

The first thing that we need to look at is what is the problem that we are trying to solve and how big is it?

Problems that have often resulted in people developing technological solutions have been ones where either human accessibility or presence is impossible or where bots can likely to be more precise and efficient.

With respect to the first idea, if a human can't do it and the task is of importance, for example working very close to a furnace, nobody has second thoughts.

But with respect to the second reason often

a) subjectivity creeps in, which is to say some people might think that humans can be more precise and adapt to dynamic situations that might be presented, while some might feel that computers are perfect in that respect.

b) trade off needs to be made between the problem that we are faced with vs the validity of this subjectivity.

So, if a problem is being able to do a neurosurgery in the cavernous sinus, often doctors needed to work with the precision of half of a millimetre, which is why nobody wanted to do the surgery in the first place, as they might end up blinding the person, something they can never live with. In the scenario that we legalised a bot, we need to trade it off against our trust on the human mind. The problem here is big enough to let go of this whim. So what we are trying to tell you is that the scale is always relative/comparative and can never be absolute.

In the case of self driving cars, the problems we are solving are the

number of accidents that occur due to human error or distraction , thus ensuring more lives being saved on a daily basis. The second problem being solved is citizens being unlawful and flouting traffic rules which a self driving will never do because it is programmed to not do that. The delegates need to discuss if these problems are big enough for us to look past what people have to say or the reservations that they might have.

2. Standards of safety:

Safety also can never be an absolute. And we need to realise that for any such technology there is only a minimum safety level that can be adhered to by all companies. Which is why deliberation on the need to examine these technologies and determine whether they are safe enough for use or not needs to be established. The parameters need to be laid down on the basis of which safety standards will be judged.

For self driving cars, the basic parameters that one might consider are- maximum speed limit, mechanism to prevent faulting of sensors or actuators, life of the car and when processor needs changing, and other such parameters.

3. Acceptability:

One of the major factors that needs to be taken into account is whether people be accepting of such a technology. It is crucial because multiple things are contingent on it, like the success of the market/industry being set up, and the possibility of solving the problem to the extent that we would want it to be.

People in Singapore are very much normalised to the idea of autonomous transport system, as they have seen their Metro Railway System being self driven, which means that people might be okay with the idea of self driving cars because they have learnt to trust computers' decision making. But something like this is not likely to happen in a developing

country where people don't feel they are ready for it and setting up this industry simply sets it up to fail.

Secondly, whether people will be okay with these technologies taking up their jobs which can obviously vary from region to region.

If legalising this technology isn't solving a big enough problem but rather eating into the jobs of people, then it becomes a little contentious. Understand how it is still tied to the idea of whether the problem being solved is in itself big enough. Is the problem that self driving cars solve big enough for us to overlook the interests of a large number of taxi drivers who might lose their source of earning? But again, this is region specific.

4. Availability of Infrastructure:

Which is precursor to the other: does legalisation of self driving cars ensure that the required infrastructure or the type of roads required will be built, or is it going to be a blind bet where safety will become an issue in absence of this infrastructure; or, is infrastructure across the board required to allow legalisation. Again, something that needs to be addressed.

5. Harms vs Benefits:

Perhaps the most important piece of analysis that needs to be done when deliberating on legalising self driving cars is whether the benefits are great enough or are the harms big enough to be over looked.

In the case of self driving cars, the benefits that come with it are less likelihood of accidents, better accessibility for the disabled who need to rely on the public transportation system, the incentive to do more research and development and propose better products etc.

While the cons being the issues with safety, reliability and also security

concerns and the likelihood of the computer being hacked which a lot of people are worried about.

6. Which move ensures better R&D:

Often legalising the technology ensures that there is greater work and free market competition ensures that companies need to better their safety, work on new things and keep bettering this technology. Whereas on the counter where these technologies are not legalised the companies and corporations stop seeing an incentive to pool in money and resources in research and development of such technologies. Again being interconnected to the point as to how much safety needs to be checked before implementing or legalising such technologies; when the cost of not legalising can be high.

V. Legislation regarding self driving cars

If the committee decides to legalise self driving cars, there is still an important hurdle that needs to be crossed, in the form of legislation that is required along with just giving these cars, what we call, street legality.

The reason we spent a number of pages discussing the reasons for a ban, or factors to be looked at while legalising a technology is because if we legalise self driving cars, obviously the harms are going nowhere; they still exist. The way to mitigate them however, is to have a comprehensive legislation that covers almost or all aspects of the same.

The various areas of the rules and regulations where specificity is required, but are not limited to:

1. Area of use:

Any legislation being passed with respect to self driving cars demands a clause talking about areas or departments where these cars will be put to use as of now, and if there is room for provision or a buffer period for the future. Possible areas where it may be independently legalised are military and public use.

2. The Classic Human AI Conflict:

The next point which needs specificity is in situations of life and death or situations where a dichotomy can exist, what does a computer do:

- a) In the case that an accident is imminent, what call does the computer make if it comes to that, does it save five people or one, or its responsibility is simply to save the passengers travelling in it the car at that point.

- b) Will the passenger ever have the power to take the controls in his hand?

- c) In the case that overriding power can be given to passenger, which legislations regarding the driver should still exist viz using the mobile,

consumption of alcohol etc.

d) In the case of an accident, who is responsible, the company, the passenger who could have taken control(if allowed to) or the programmer?

3. Traffic Regulations:

Clarification is required on two things- the speed limit that they will be allowed seeing their precision(keeping in mind pedestrians and other people who do not own self driving cars) and any other related issue.

4. Responsibility on the Company:

Would the committee want to place certain burdens on the manufacturing corporations is again up for debate but might certainly include:

- a) constant software updates
- b) continuous contact with system
- c) 24x7 assistance
- d) prevent or counter hacking

5. Prerequisites on a country:

Reiterating the question whether infrastructure should be a precursor for implementation in a country or not.

VI. Where do diplomacy and MUN skills tie in?

When you are in the capacity of a country or corporation giving his assent or dissent regarding legalisation of self driving cars, you do it from a position of comparative advantage.

In which scenario, are the interests of the actor you represent, best taken care of. If an actor is a leader in research and development and has the capability of capitalising on the industry that is likely to pay off, one might consider saying yes. Similarly if an actor knows it will be disadvantaged because the people might not agree implementation in the public sphere, he might lobby for legalisation on a military front.

Similarly, the counter can be argued. Which is why despite it being an agenda where you need to think on issues, consequences and do some actual debate, the scope for engagement and diplomacy- the core of any model united conference is kept beautifully intact.

VII. Questions a Resolution Must Answer

1. Whether the committee calls for legalization of self driving cars or to extend the ban on it.
2. If the ban is to be continued, then the factors as to why so, and scope and room for further discussion or committee session to rediscuss.
3. Legalization clause should be entailed by:
 - a. Area of use
 - b. Minimum safety standards
 - c. Programming in case of accident according to the dilemma posed in section V/clause 2/sub clause a) (Refer)
 - d. Cases in which human control will be permitted
 - e. Limitations on what activities passengers can do or with respect to alcohol policy (if committee decides to give overriding power to humans)
 - f. Responsibility and liability of the company
 - g. Infrastructural prerequisites
 - h. Any other clause that gives specificity or detail

NOTE: In an agenda like this, the EB would really like the committee to come forward with thought out and detailed solutions with specificity rather than vague implicating clauses. Delegates should thus pay special attention to the same.

VIII. Useful Links

https://en.wikipedia.org/wiki/Autonomous_car

https://en.wikipedia.org/wiki/Google_self-driving_car

<http://www.cbsnews.com/videos/self-driving-car-debate-reaches-capitol-hill/>

<http://www.autoinsurancecenter.com/top-20-pros-and-cons-associated-with-self-driving-cars.htm>

<http://www.techtimes.com/articles/67253/20150728/driverless-cars-safe.htm>

<https://www.technologyreview.com/s/542626/why-self-driving-cars-must-be-programmed-to-kill/>

<http://ideas.time.com/2013/01/14/will-self-driving-cars-change-the-rules-of-the-road/>

<http://www.nytimes.com/roomfordebate/2015/01/29/are-we-ready-for-driverless-cars>

<http://www.popsoci.com/who-will-driverless-cars-decide-to-kill>