Section 4

Responsibility and Legal Issues

sinead.barton@mu.ie

1. Insurance Law
2. Civil Liability Shifts
3. Criminal Culpability
4. E-Discovery
5. Data Security
6. New Statutes and Regulations
7. Intellectual Property
8. Employment

Top 8 Legal Implications of Automation:

American Bar Association 18/02/21

Insurance Law

Considerations for how automation may affect insurance law

Definition of Insurance

An arrangement by which a company or the state undertakes to provide a guarantee of compensation for specified loss, damage, illness, or death in return for payment of a specified premium.

What is insurance?

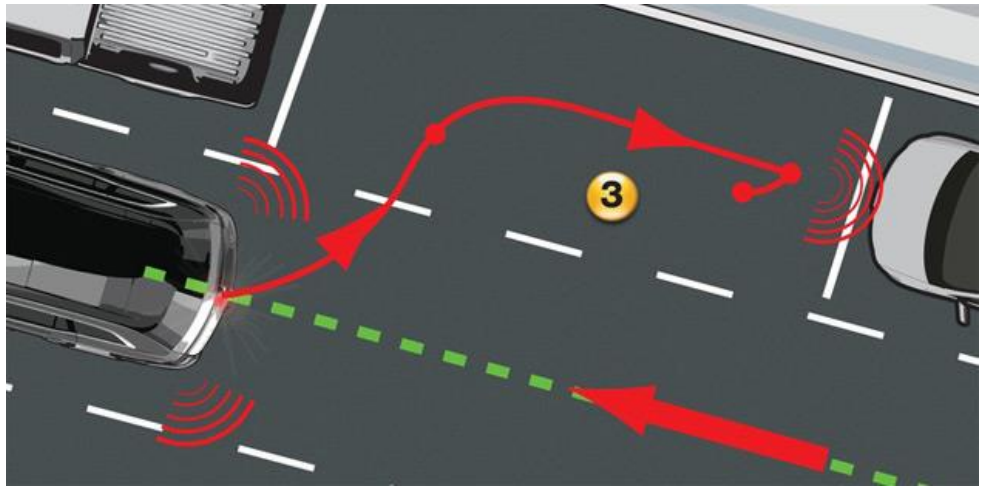
- Insurance is a means of protection from financial loss. It is a form of **risk management** primarily used to hedge against the risk of a contingent, uncertain loss.

- The loss may or may not be financial, but it must be reducible to financial terms, and must involve something in which the insured has an insurable interest established by ownership, possession, or pre-existing relationship.

Insurance

- Two self-driving cars crash, when no-one is in them – who is responsible?

Insurance



- A self-parking car, doesn't see a child and crushes her, who goes to jail??
  - The driver who turned on the self-park
  - The car company who made the "imperfect" machine
  - The self-parking tech company who make the system
  - The engineer in the tech company who missed the bug?


INSURANCE
RISK

Shifts in Civil Liability

When something goes wrong, how do we decide who is responsible?

How will automation affect this?

What is liability?

- Liability is where someone is **responsible** for the injuries or loss caused by their action or products.
- Product liability is the area of law in which manufacturers, distributors, suppliers, retailers, and others who make products available to the public are held responsible for the injuries those products cause.

How is liability determined?

- For products, the liability may arise from
  - **Manufacturing defects**
  - **Design defects**
  - **Failure to inform, or providing mis-leading information**

So here's the question

- Things are very clear for existing devices. They do what the manufacturer asks and if they are used incorrectly or fail to work for whatever reason, then it is pretty easy to work out who is liable.

- **So how do you handle a device that has a learning ability, where the behaviour changes after the device is manufactured**

- These are called adaptive or cognitive devices

Manufacturer's Perspective

- Imagine I have a home-care robotic device that has an AI/cognitive ability – in others it will learn and adapt

- **The manufacturer is responsible for the correct operation of the product it sells.**
- **However in an adaptive technology**

  - Is the manufacturer responsibility for injuries arising from the "incorrect training" of the cognitive element of the product?

  - Is the owner/operator responsible or capable of doing "correct training" – how would they know if it was going wrong, are they trained?

  - What happens if there is a capability for "malicious training" of the device? Should the manufacturer have protected against that?

Some opinions: An EU proposal

This also involves point 6 on slide 2

EU laws should recognise liability of robots, says MEP

Robots could be held liable, at least in part, for damages caused when they malfunction or in accidents under future EU legislation, an MEP has said. | 07 Jul 2016

Product liability | Insurance law and liability | Insurance | Regulatory | Health & safety | Diversified industrial | Advanced Manufacturing & Technology | UK | Europe | Germany | France

In a draft report submitted to a European Parliament committee, Mady Delvaux of Luxembourg said future laws should recognise "robots' civil liability" (22-page / 331KB PDF). In future the liability of manufacturers, programmers, owners and users of robots for actions by robots should reflect the self-learning capacity of machines and their ability to operate independently.

"In principle, once the ultimately responsible parties have been identified, their liability would be proportionate to the actual level of instructions given to the robot and of its autonomy, so that the greater a robot's learning capability or autonomy is, the lower other parties' responsibility should be, and the longer a robot's 'education' has lasted, the greater the responsibility of its 'teacher' should be," Delvaux said.

"Skills resulting from 'education' given to a robot should be not confused with skills depending strictly on its self-learning abilities when seeking to identify the person to whom the robot's harmful behaviour is actually due," she said.

Parking Assist in Cars…

"Right now, from an insurance perspective, the bottom line is that with all driving situations the driver is responsible for the operation of their vehicle," says Dave Minor, vice-president at TD Insurance.

"A good case to go by is cruise control, a driver-assisted technology that's been around for some time. Even though most cars now come equipped with cruise control, which people can use to assist in their driving and make their driving more comfortable or effective, at the same time the driver is still ultimately responsible for the car," says Minor.

- This can vary from country to country but it's true in most of Europe
- It gets complicated
  - If the car had a defect
  - if the car was hacked
  - If the car could have avoided a dangerous situation by doing something illegal

Currently with self-driving cars – Part 1

Why You Shouldn't Worry About Liability for Self-Driving Car Accidents

By Mark Harris
Posted 12 Oct 2015 | 20:00 GMT

Volvo president Håkan Samuelsson caused a stir earlier this week when he said that Volvo would accept full liability whenever its cars are in autonomous mode. Samuelsson went further, urging lawmakers to solve what he called "controversial outstanding issues" over legal liability in the event that a self-driving car is involved in a crash.

"If we made a mistake in designing the brakes or writing the software, it is not reasonable to put the liability on the customer," says Erik Coelingh, senior technical leader for safety and driver support technologies at Volvo. "We say to the customer, you can spend time on something else, we take responsibility."

This, says Samuelsson, makes Volvo, "one of the first car makers in the world to make such a promise." Google and Mercedes Benz have recently made similar assurances. But does that mean if your future self-driving Tesla or Volkswagen gets into a crash instead, you're going to be on the hook for all the damages?

Currently with self-driving cars – Part 2

For a start, manufacturers must exercise a reasonable degree of care when designing their products. It makes sense that any company selling a self-driving car that, for instance, was not tested in bad weather, might be sued for negligence if one crashed during a snowstorm. But that is, perhaps, a poor example. "Snow is difficult because it limits visibility," says Volvo's Coelingh. "And it is low friction and so limits braking ability. Snow's not impossible but it's really difficult."

Even if not pronounced negligent, manufacturers can still be found 'strictly liable' for any problems discovered in their final products, or can be sued for design or manufacturing defects. They can also be held liable if they fail to warn consumers of the risks of using (or misusing) products or services.

To reduce the chance of any mishaps, Volvo intends to give its first customers special training for their self-driving cars. The company will seek out a diverse range of drivers representative of its customer base, including older motorists and those suspicious of new technology. "One of the really interesting things is to see if people who are skeptical in the beginning will change their minds once they have used it for a while," says Coelingh.

This approach is OK for development, but is it scalable?

Will it be possible to remain like this or will this need to be changed in 5 years?

Where are the limits???

How long will the manufacturer guarantee the car?

Do you need to stay “patched”?

Do you need to go to authorised service dealers?

Criminal Culpability

A case study and an example of how liability and culpability are different

Liability vs. Culpability

LIABLE

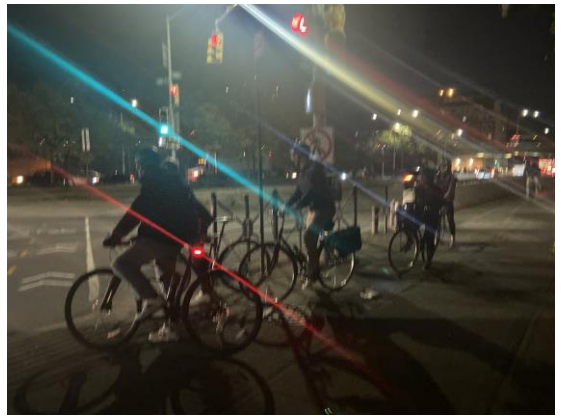
- As we have covered, being LIABLE means being legally responsible for something
- You can be liable for something beyond your control
- Liable does not include being moral!

CULPABLE

- Being culpable means being deserving of blame i.e. being morally responsible
- Culpable can be used to mean legally responsible but does not have to be

Elaine Herzberg 18/03/18

- In 2018 Uber were testing self driving cars, a Volvo SUV, on the streets of Arizona, USA. Safety drivers were assigned to monitor each vehicle
- A self-driving vehicle killed a pedestrian as she was walking across the street with her bicycle outside of a crosswalk.
- According to the official report, the SUV had three sensor systems designed to detect an object and determine its trajectory. However, the system could not determine whether Herzberg was a pedestrian, vehicle, or bicycle. It also failed to correctly predict her path.
- The safety driver was on his phone and did not intervene with the automatic system




As humans we recognize bicycles, even if they look strange….

Who is liable and who is culpable?

- The company testing the self driving car was Uber
- The manufacturer of the car was Volvo
- The government gave permission to test the cars
- The safety driver in the car was not paying attention, and is also employed by Uber

Who was determined to be responsible…

LIABLE

- Uber is liable and was required to pay compensation to Elaine's family
- The reason that Volvo was not liable is that Uber were responsible for providing the software and sensor system in the car.

CULPABLE

- The Safety Driver was charged with negligent homicide 20/09/18. She is awaiting trial.
- She was morally responsible because she could have prevented the accident if she had been paying attention.

A tricky one

- If drunk, do you have the legal authority to tell the car to take you home??
- If drunk, do you have the ability to regain control of the car if the auto-pilot cannot handle a situation?
- Are you a passenger or a driver?

Next, consider this future-shock scenario: You've had one too many Scotches at that meeting. Can you slip behind the wheel of your autonomous car and tell it, "take me home," without breaking drunk-driving laws?

- One extreme solution is to remove responsibility from the user but in the scenario the user also has no authority – would we like that?
- Waymo (a direct competitor of Uber) is proposing to have driverless taxis where all liability is with the operator of the car and not the passenger.
- This is an example of a ‘man in the middle issue’. We will talk about this more in the next section of notes.

Mark Rechtin Words - October 27, 2017

Tricky self-driving stage presents safety implications, automaker says

Share this article in:

Toyota is considering skipping the development of so-called Level 3 autonomous vehicles because of the safety and legal ramifications it presents, a top safety and technology executive said.

At issue is the Level 3 "handoff" between a semi-autonomous self-driving vehicle and a possibly not-aware driver—when a situation arises that the car's computer cannot intuit or comprehend. If the human in the driver's seat is not paying attention, however, the human might be thrust into a situation to make a worse, and potentially lethal, decision.

- Toyota doesn't know how to manage the handover between the "driver" and the "self-drive"
- Safety and Legal implications
- But can a self-drive truly comprehend all situations in all conditions.
- Regulated roads are things like inside airports, factories, defined spaces.

Currently with medical surgery robots

https://www.products-liability-insurance.com/robotics-product-liability

Medical Robots Already Exist…

- Liability claims have already been brought against surgeons, hospitals, and manufacturers due to injuries that allegedly resulted from robot-assisted surgeries, such as infections and burns.

- It will be important to look at the division and scope of liability when deciding if fully-automated surgical robots provide the legal certainty for the safety patients need.

Who would be liable?

- Which of the parties involved in such claims would be liable if something goes wrong?
  - The surgical team?
  - The robot manufacturer
  - The maintenance provider?
  - The software developer?
  - The hospital?
  - The network and power providers? *(network and power companies don't guarantee anything)*

Requires un-biased monitoring

- Robotic surgery theaters are already being equipped with "**black boxes**" similar to those installed in aircraft, which record executed commands and movements.

- This enables forensic investigators to determine not only the cause(s) of the injury but who the responsible party or parties are.

E-Discovery and Data Security

This relates to privacy, which we will cover in another section of notes.

Possible Solution – for complex systems

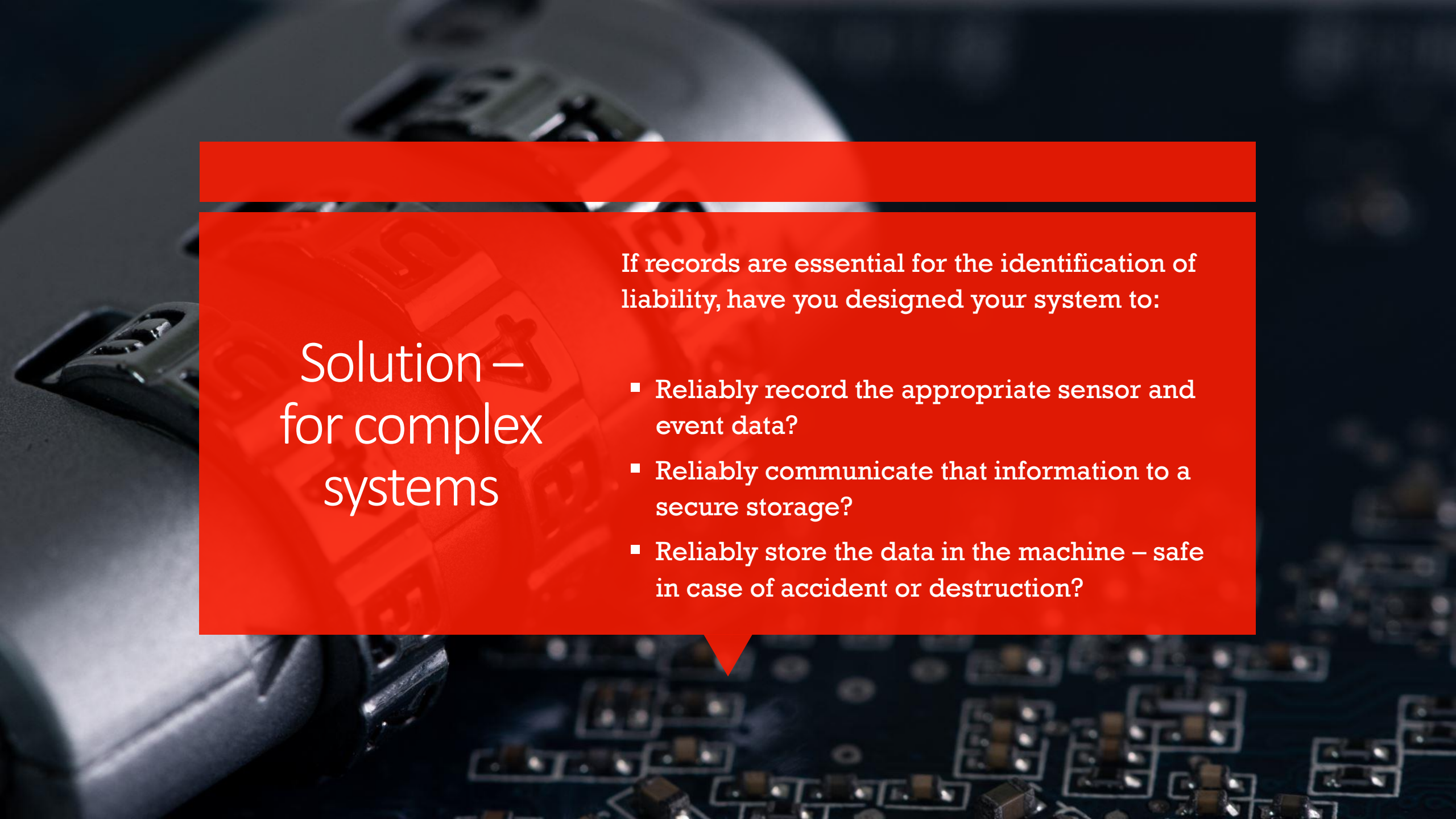
"Event data records could come into play when trying to determine who was in control of the vehicle in the case of a self-driving car. However there are legitimate privacy concerns that need to be addressed.

"There needs to be clarity on the data that is captured and how to transfer it in the case of a claim. It's important to know exactly how data from individual vehicles will be recorded and used to improve safety and clarify liability. If a driverless car is involved in an accident liability may not lie with the car owner, but the manufacturer. This is a big change and may cause some traditional personal insurance products to evolve into commercial liability products," he stated.

Data to the rescue once again? In the short term sure, but as we head towards the implementation of the General Data Protection Regulation that clarity over the period of data collection and subsequent deletion may only serve to create ambiguity over control of a vehicle beyond a short timeframe.

This could clash with existing EU regulations…

- The General Data Protection Regulation (GDPR) is a regulation of the EU that aims to standardise privacy laws across the EU
- The GDPR will severely restrict how long you can hold the data (15-30 seconds) in situations where very personal information is concerned
- This could cause the GDPR regulation to be replaced with a new version (see point 6 on slide 2)



Solution – for complex systems

If records are essential for the identification of liability, have you designed your system to:

- Reliably record the appropriate sensor and event data?
- Reliably communicate that information to a secure storage?
- Reliably store the data in the machine – safe in case of accident or destruction?

Solution – for complex systems

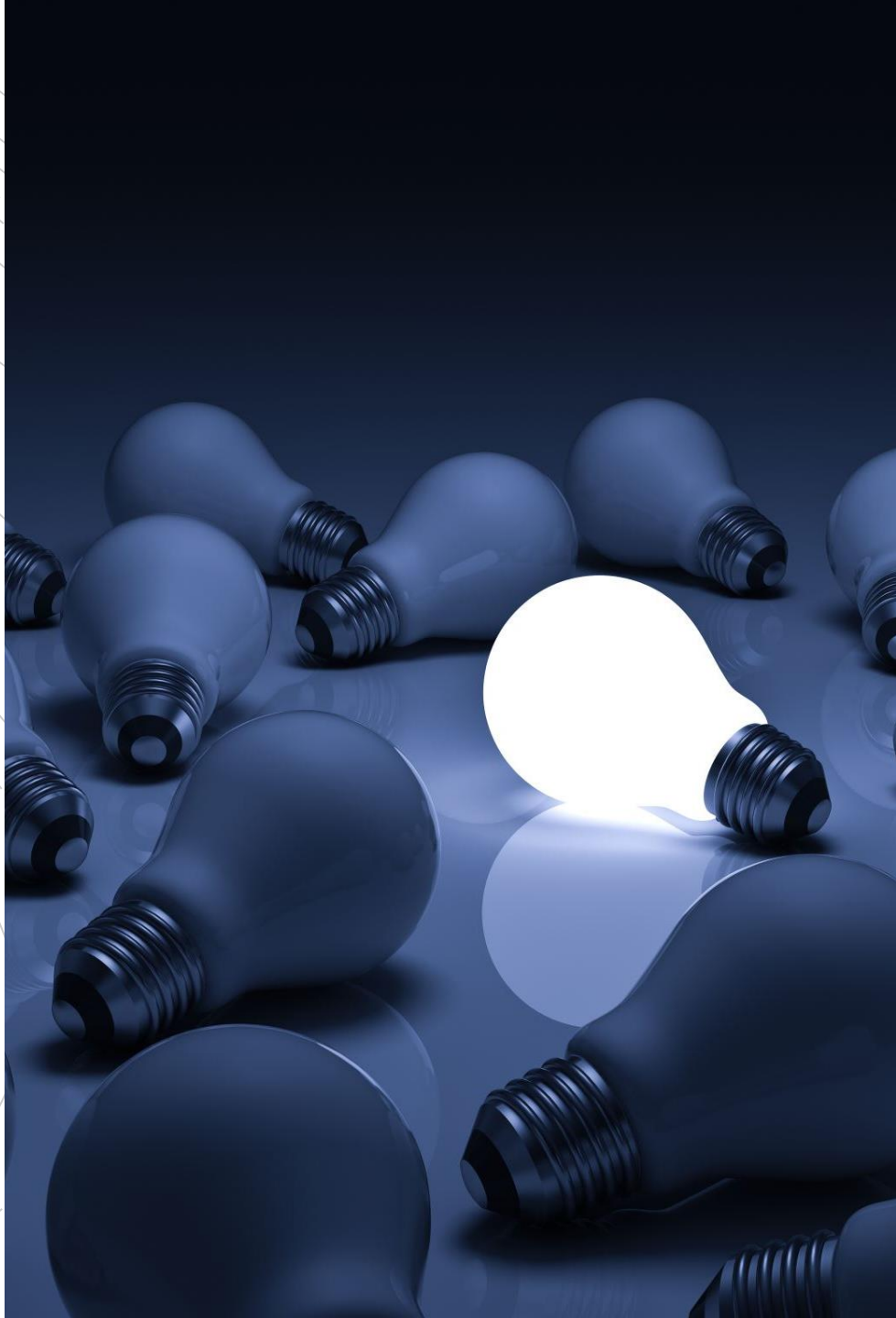
Some of this could be quite simple, copy the data to a set of records or a database?

- But are you capturing enough data? Do you need to just keep the inputs and outputs or do you need information about the internal workings?
- Will your storage run out?
- How long do you keep it?
- How much effort are you going to go into documenting it?

Prediction

- The lawyers and the insurance companies will have a lot to say about this
- One extreme solution is to remove responsibility from the user but in the scenario the user also has no authority – would we like that?

Intellectual Property



What is it?

From Wikipedia

- Intellectual property (IP) is a category of property that includes intangible creations of the human intellect. The most well-known types are copyright, patent, trademark, and trade secret.
- Essentially, if you have an idea that could be profitable, it is a way to prove that you had the idea first so that you can earn money from it.

- To encourage innovation, the law gives people and businesses property rights to the information and intellectual goods they create, usually for a limited period of time.
- This gives an economic incentive for their creation, because it allows people to profit from the information and intellectual goods they create.

Example: Coca-Cola

- The above logo is a trade-mark. This means that no other business can use this logo without infringing on Coca-Cola's IP
- Coca-Cola also have trade-secret. This is the recipe that they use.
- The way Coca-Cola is made and bottled is patented. You will notice that Coca-Cola bottles have many different designs.

There is a race for companies to register their IP

- The poaching of engineering talent and trade-secret race is well underway.
- In self driving cars:
  - Tesla has taken a collaborative approach in some ways e.g. they made 200 of their patents involving battery technology available in 2014.
  - Toyota alone has approximately 1,500 patents on self-driving cars.
- Clients developing products will need to be advised on avoiding patent infringement.

What happens if a machine invents something?

QUESTION

- A machine learning algorithm, that was invented by Person X, is being used in Company Y. The algorithm determines a more efficient manufacturing process that has not been patented before.
- Who owns the IP?

NO CURRENT ANSWER

- If a robot can be liable (slide 14), can it own IP?
- Person X might have the patent for the algorithm but Company Y paid to use it.
- Without Company Y the new manufacturing process would not have been discovered.

Employment

We have already discussed how automation might affect people in terms of how they could lose their jobs

Will automation affect how people get jobs?

Will employment law need to change?

Example

THE TASK

- A company was testing a machine learning algorithm to see if they could automate their hiring process.
- The algorithm was trained on the companies list of employees during their most profitable periods

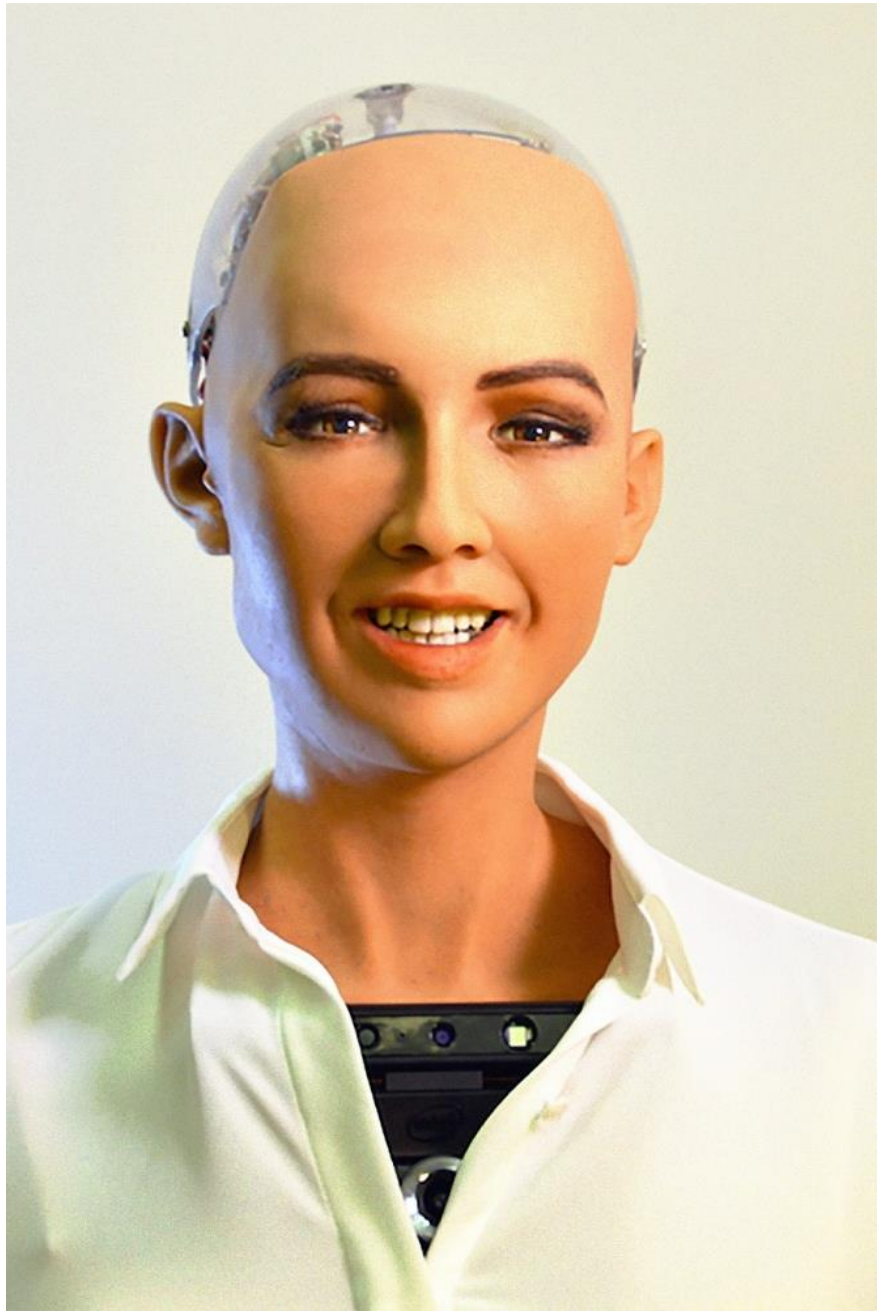
THE UNFORESEEN COMPLICATION

- Historically, the work force has been primarily male
- The algorithm had learned to be biased toward male employees
- The company was unable to implement the automation

Sophia

An Extreme Example

https://www.hansonrobotics.com/sophia/



Who is Sophia?

SOPHIA THE ROBOT

- Hanson Robotics' most advanced human-like robot
- Sophia has self learning capabilities and has mastered 30 human facial expressions
- She was designed to be a companion for the elderly
- Sophia has also appeared on many TV talk shows

SOPHIA THE CITIZEN

- In 2017 Sophia was the first robot to be given legal personhood anywhere in the world (citizen of Saudi-Arabia)
- Sophia was also named the United Nations Development Programme's first-ever Innovation Champion for Asia and the Pacific in 2017.

How is Sophia Perceived?

POSITIVE

- Sophia is an incredible leap forward in technology
- She has the potential to be a testbed for human robot interaction
- The more a robot learns about the world the more we could learn about humans from first principles.

NEGATIVE

- People can become uncomfortable if they cannot determine if it is a human or a robot
- People can worry that if a robot can have citizenship and a job that one day being human will need to be redefined.

Ultimately…

Regardless of whether people have negative or positive views on how the technology advances the law must advance with it.

New technology brings new challenges as well as opportunities. This means the law must be prepared to effectively deal with any challenges.