

SAFETY & RELIABILITY SOCIETY

# CARPE DATA: THE IMPACT OF DIGITALISATION ON RISK MANAGEMENT AND INSURANCE

BY  
CLIVE THOMPSON AND  
MARK BOULT

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1<sup>ST</sup> JULY 2021

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Engineering Council for CEng and IEng Professional Registration



**SaRS** SAFETY  
AND  
RELIABILITY  
SOCIETY

Slide 1



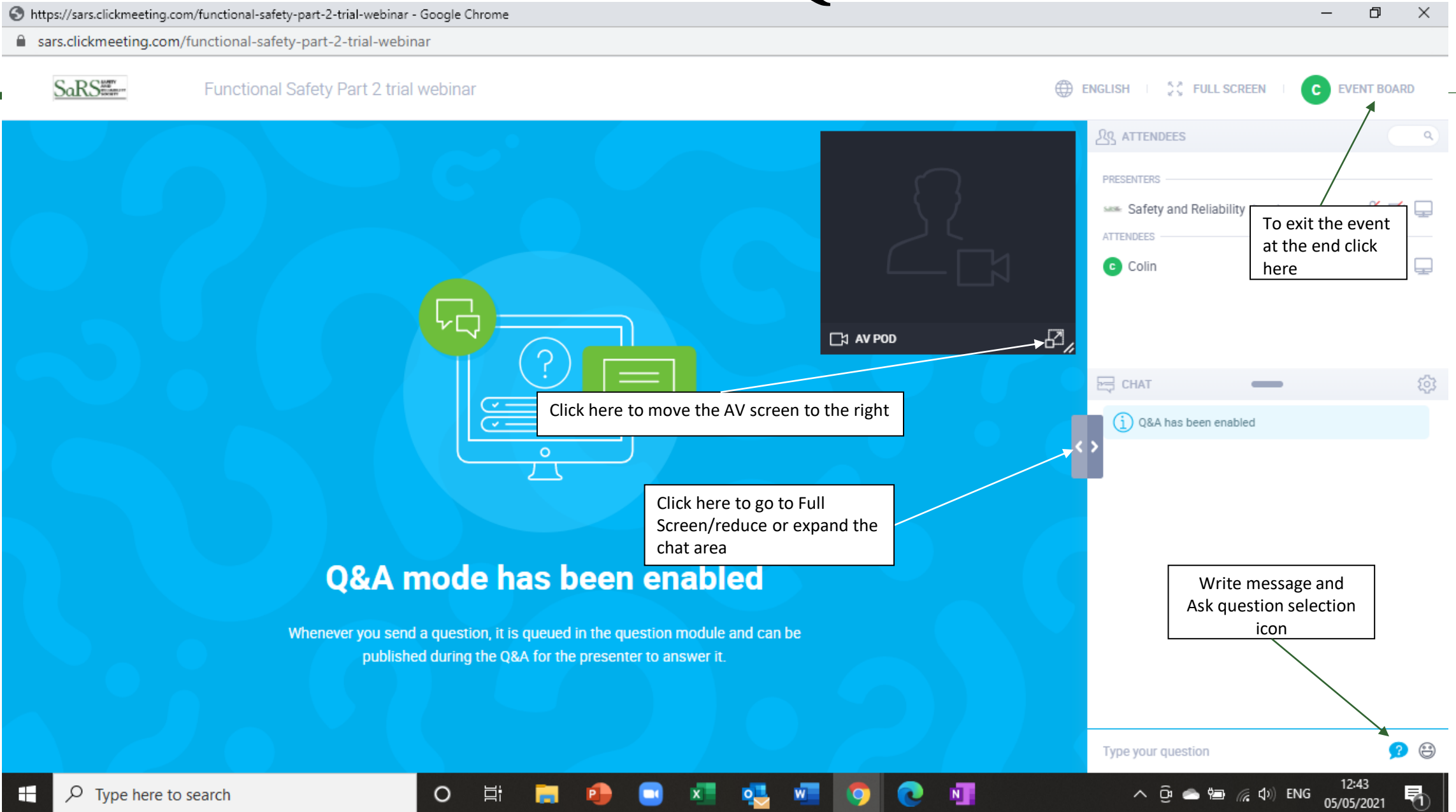
# Programme

- Introduction
- Presentation by Clive Thompson and Mark Boulton
- Q&A session
- Accessing the webinar and upcoming webinars
- Feedback

Note: the Webinar is being recorded



## VIEWING IN FULLSCREEN AND Q&A FACILITY





# Carpe Data:

The impact of digitalisation on risk management  
and insurance

# Agenda

- Insurance and risk management
  - Yesterday
  - Today
- Where do you stand: our quiz
- Looking into (future) digital technologies
  - Digitalisation
  - Processing capabilities
  - AI /Machine Learning
  - IOT
- Q&A and wrap up

- Clive Thompson CFIRM



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**TODAY WE ARE AIMING TO GET YOU ALL TO THINK!!**

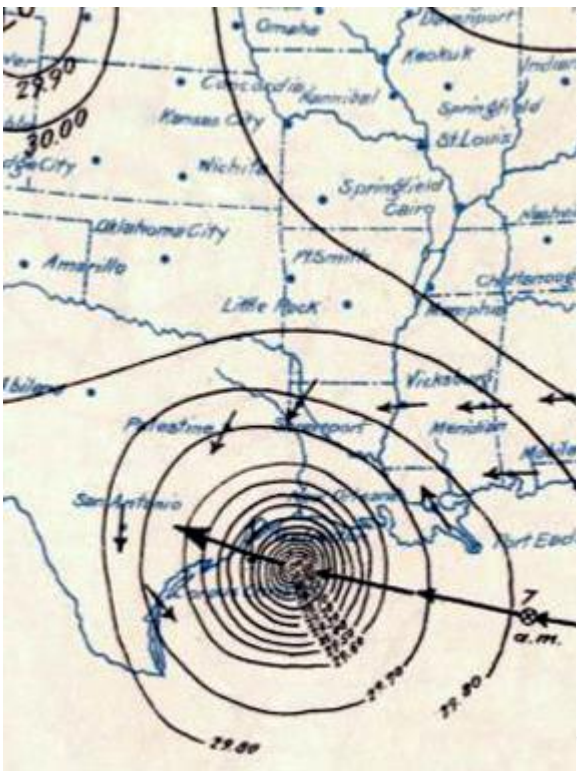
About:

- How digitisation (data and new technologies):
  - Has already changed how we manage risk, including use of insurance
  - Could help you to better manage risk and uncertainties in the future
- What you may prioritise and change in the ways you manage your risks and use or offer insurance

With the aim that you all go back to your work (and home) lives, embrace digitisation, and accelerate how you use it to enhance the management of risk, both opportunities and threats

# The past to today – is digitisation already here?

## The Great Galveston Hurricane 1900 (8,000–12,000 fatalities)



<b>Formed</b>	August 27, 1900
<b>Dissipated</b>	September 15, 1900 (Extratropical after September 13, 1900)
<b>Highest winds</b>	1-minute sustained: 145 mph (230 km/h)
<b>Lowest pressure</b>	936 mbar (hPa); 27.64 inHg
<b>Fatalities</b>	6,000–12,000 (Deadliest in U.S. history; fourth-deadliest Atlantic hurricane)
<b>Damage</b>	\$35.4 million (1900 USD) (\$1.097 billion in 2020 USD)
<b>Areas affected</b>	Lesser Antilles, Greater Antilles (Dominican Republic and Cuba landfalls), Turks and Caicos Islands, Bahamas, Gulf Coast of the United States (Texas landfall), Midwestern United States, Mid-Atlantic, New England, Eastern Canada

Part of the 1900 Atlantic hurricane season

## Hurricane Laura 2020 (47 direct, 34 indirect fatalities)



<b>Formed</b>	August 20, 2020
<b>Dissipated</b>	August 29, 2020
<b>Highest winds</b>	1-minute sustained: 150 mph (240 km/h)
<b>Lowest pressure</b>	937 mbar (hPa); 27.67 inHg
<b>Fatalities</b>	47 direct, 34 indirect
<b>Damage</b>	≥ \$19.1 billion (2020 USD)
<b>Areas affected</b>	Lesser Antilles, Greater Antilles, The Bahamas, Gulf Coast of the United States, Midwestern United States, Eastern United States

Part of the 2020 Atlantic hurricane season

**History**

- Meteorological history

**Effects**

- Louisiana

**Other will**

- Commons: La



# The past to today – is digitisation already here?

## The Great Galveston Hurricane 1900 *(8,000–12,000 fatalities)*



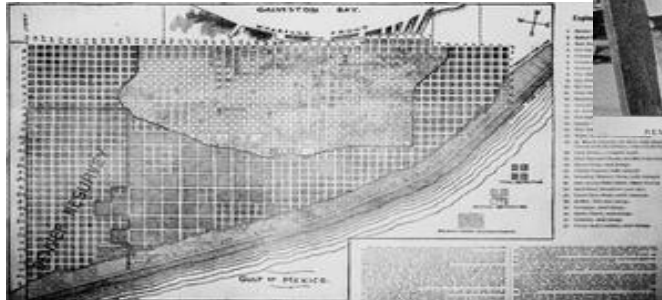
## Hurricane Laura 2020 *(47 direct, 34 indirect fatalities)*



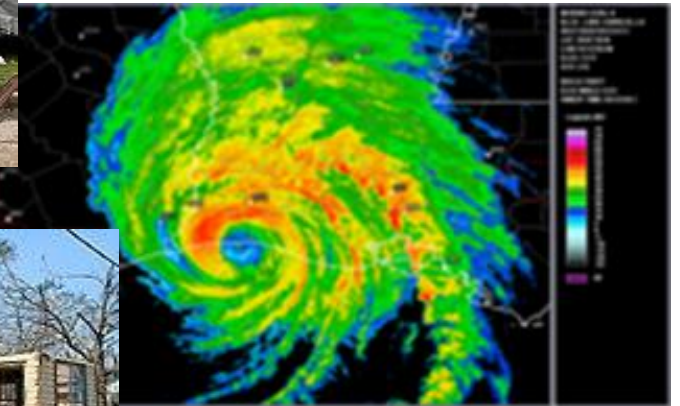


# The past to today – is digitisation already here?

## The Great Galveston Hurricane 1900 (8,000–12,000 fatalities)



## Hurricane Laura 2020 (47 direct, 34 indirect fatalities)



# Home insurance

*I now enclose, for your information and retention, the result of the Environmental Search in relation to the above property which has been carried out on your behalf.*

*I would urge you to carefully read through the of the search as it contains important information relating to the property.*

**You will note that the Professional Opinion draws your attention to High Risk Flooding, Ground Stability, Energy and Radon.**

## Professional opinion

Addresses the Law Society practice notes on Contaminated Land and Flood risk.



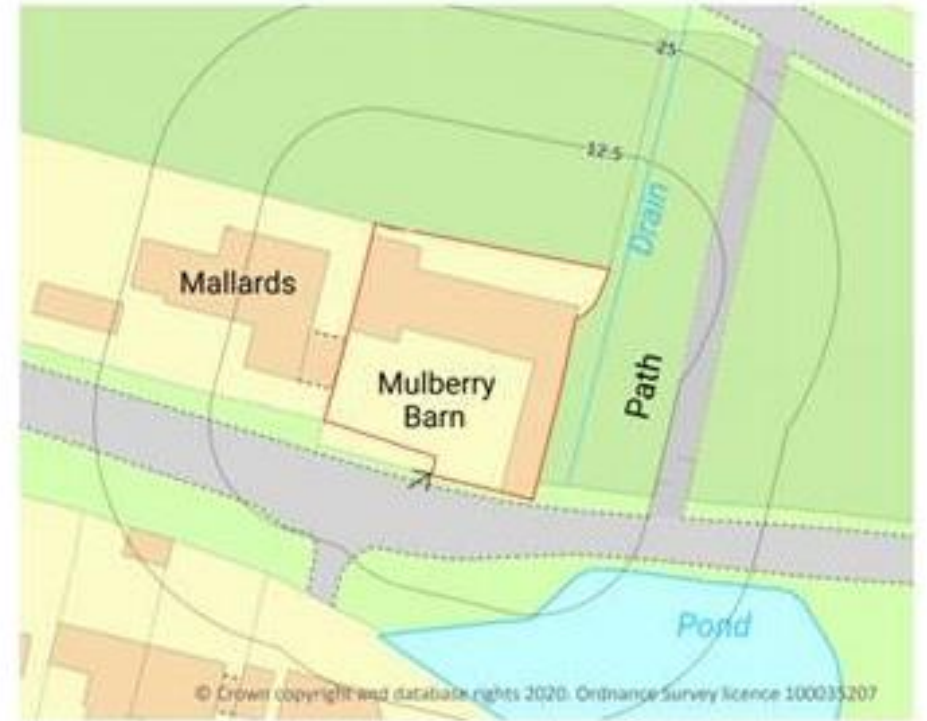
Contaminated Land Liability  
Passed



Flood Risk  
High

page 4

## Site plan



# Yesterday and Today

- Insurance and risk transfer
  - Collaborative data manually analysed
  - Long term partners / annual reviews
  - 'Traditional' well understood risks
- Enterprise risk management
  - The term was yet to be invented!
  - Risk assessments ; Fault and Event Trees, HAZOP, QRA
  - Silos
  - Manual
- Insurance and risk transfer
  - Co. data sets algorithmically analysed
  - More transactional – commodified
  - Move to index / parametric approach to widen risk transfer capability
- Enterprise risk management
  - Data, models with expert input
  - Software
  - Dashboards / real time data(?)
  - More integrated

Yesterday is history - tomorrow is mystery

... and we have risk and uncertainties, threats and opportunities, to manage for today, tomorrow and into the future



# Where do you stand

- Question time
  - Instructions from facilitator on how to vote





# Where do you stand? – Question 1

1. Are you using live information / dashboards on status of risks and their controls to support operational and insurance decisions?

## Where do you stand? – Question 2

2. Are you using AI / ML to support your risk management activities or insurance processes?

## Where do you stand? – Question 3

3. Are you using any of the following digital technologies in your management of risk today? – Digital Twin, Block Chain, IOT plus other new digital technologies





# Future digital technologies

(or are they already here?)



# Digitalisation



# Digitalisation

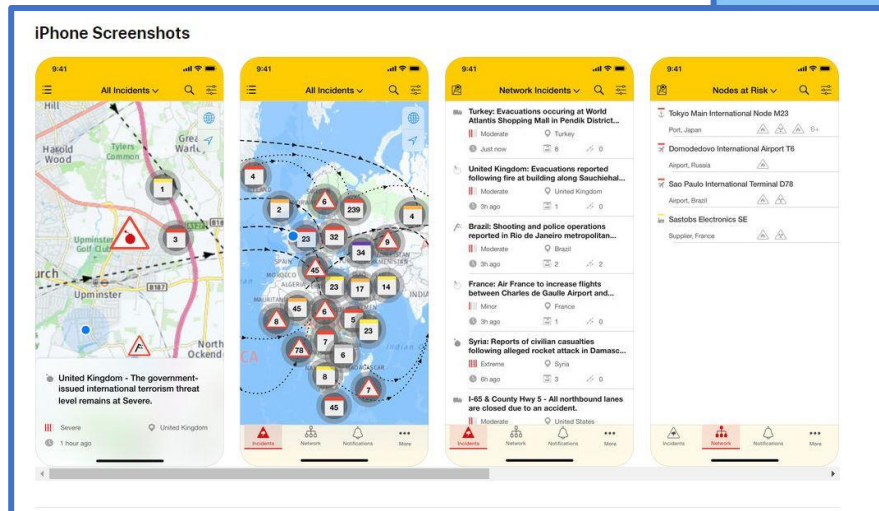
- Examples
  - Country risk





# Digitalisation

- Examples
  - Country risk
  - Supply chain



# Digitalisation

- On-line information disclosure
- Wider array of information
- Examples
  - Country risk
  - Supply chain
  - Risk information and "live status" dashboards – e.g. for controls / barrier management



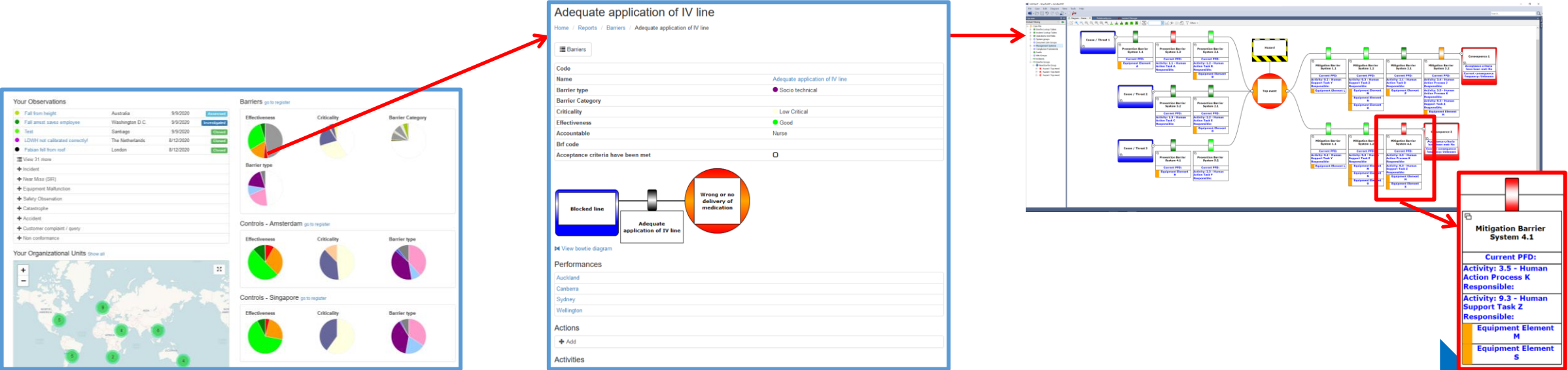
SYNERGI™ LIFE

DNV



# Digitalisation Live controls management system

Wolters Kluwer  
CGE Risk



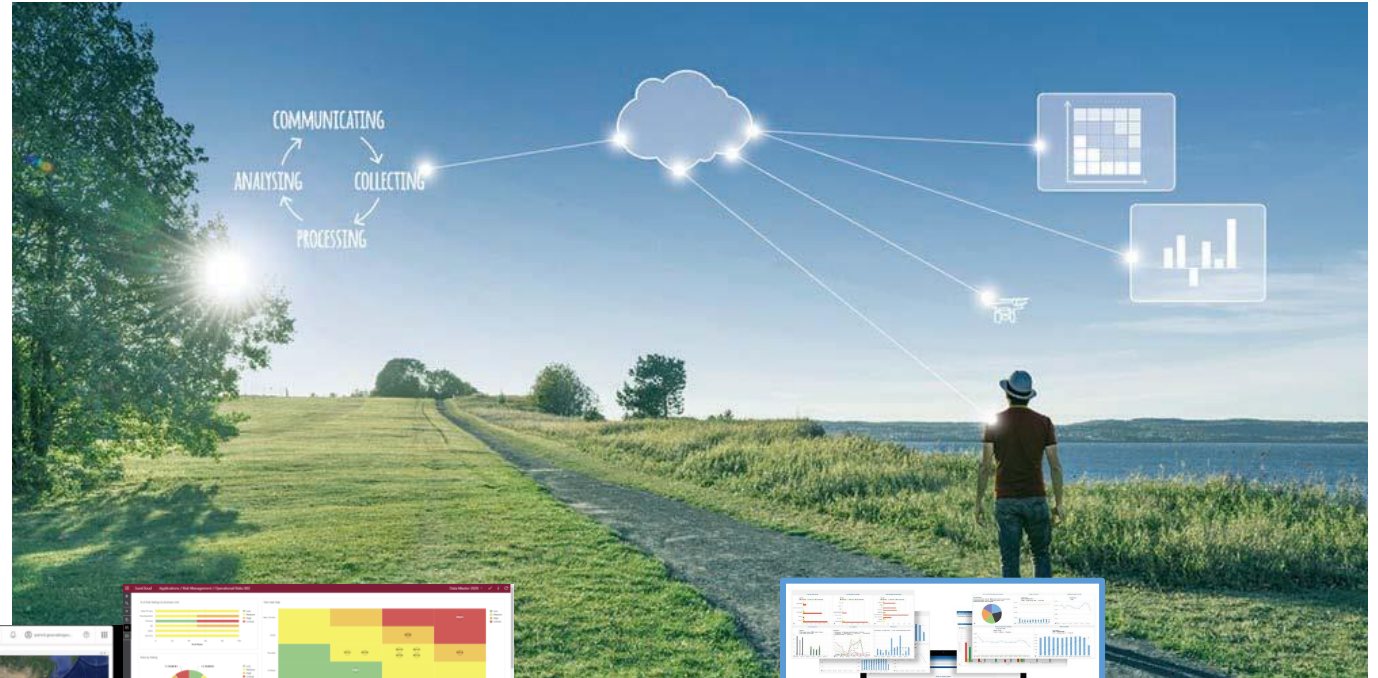
Dashboard shows weakness  
*(help see the wood from the trees)*

Detailed information explains  
control situation / weakness

Critical barrier condition visible to  
support operational decisions

# Digitalisation

- On-line information disclosure
- Wider array of information
- Examples
  - Country risk
  - Supply chain
  - "Live status" dashboards
  - Risk registers, risk analysis, crowd sourcing, etc.



# Data storage, processing and access capabilities

- Blockchain links to tie parties together
  - Links finance / location / risk data
- Digital twins to analyse risk
- Automated finance transfers





# AI / Machine Learning

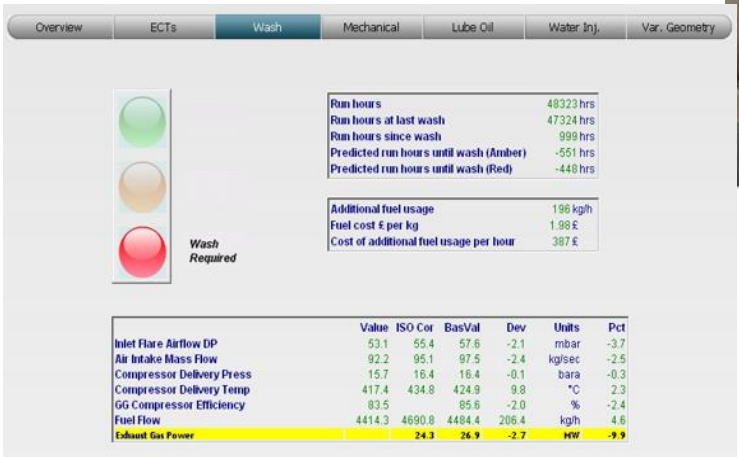
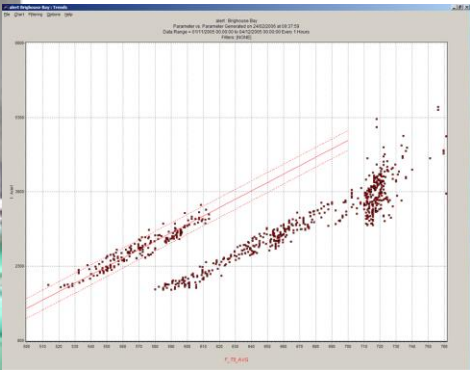
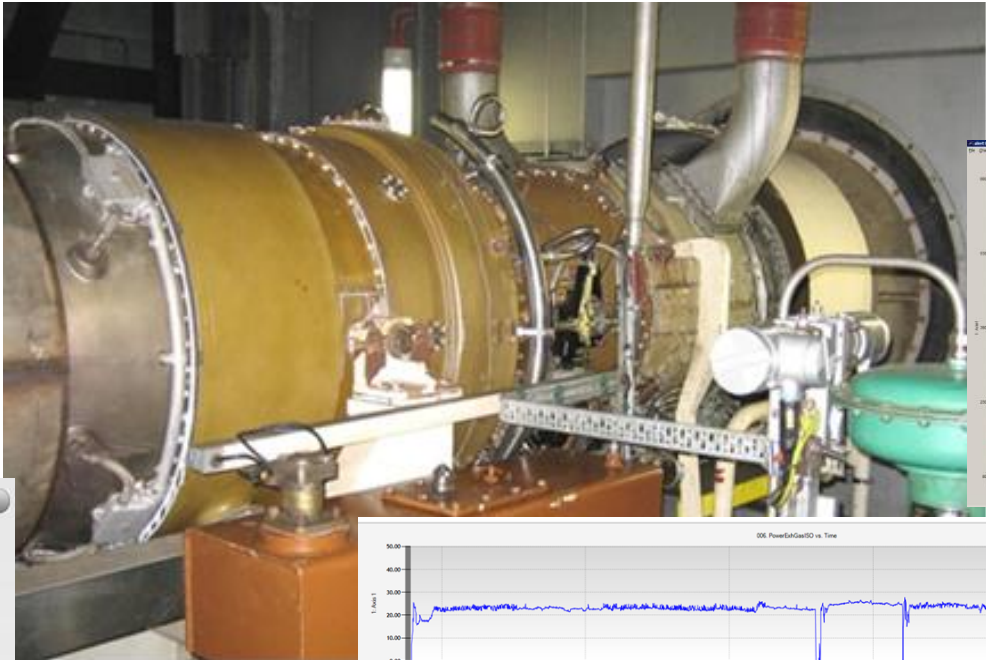
- Continuous auditing (monitoring)
- Inspection intelligence
  - Greater coverage
  - Predictions (to take action in a timely manner)





# IOT

- Monitoring equipment



# IOT

- Monitoring equipment
- Monitoring people

The vehicle is equipped with a camera built into the dashboard and aimed at the driver's face. It allows functionalities such as:

- Identification of the driver in order to allow the vehicle to automatically restore its preferences and settings
- Monitor driver fatigue and alert him when potential drowsiness situation is detected
- Monitor driver attentiveness by ensuring he's keeping his eyes on the road and that he is aware of any dangerous situation
- Pilot an user interface thanks to the eyes by automatically selecting HMI areas, highlight features...



# IOT

- Monitoring equipment
- Monitoring people – But is it needed?





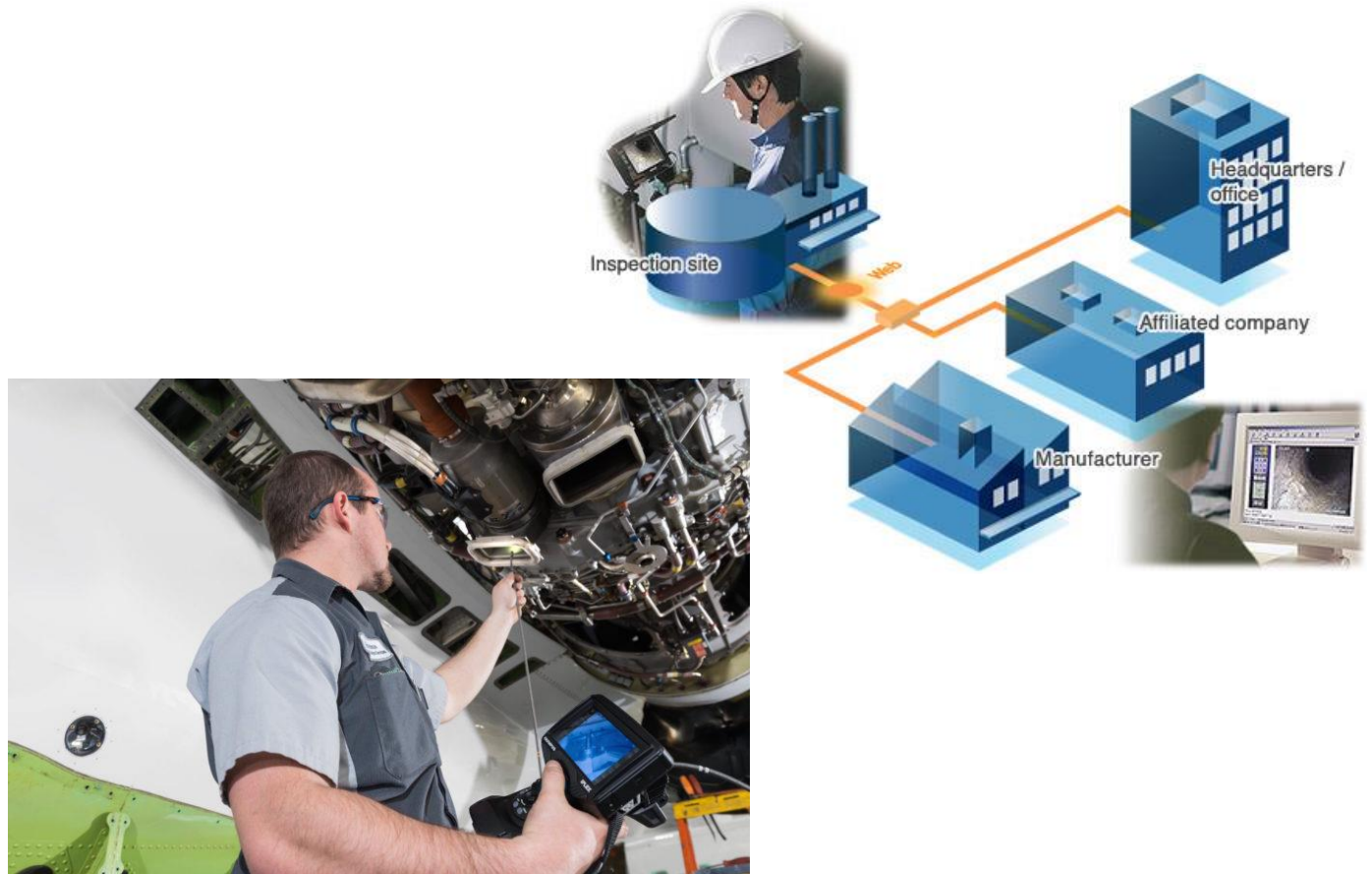
# IOT plus other digital and new technologies

- Monitoring equipment
- Monitoring people
- Drones



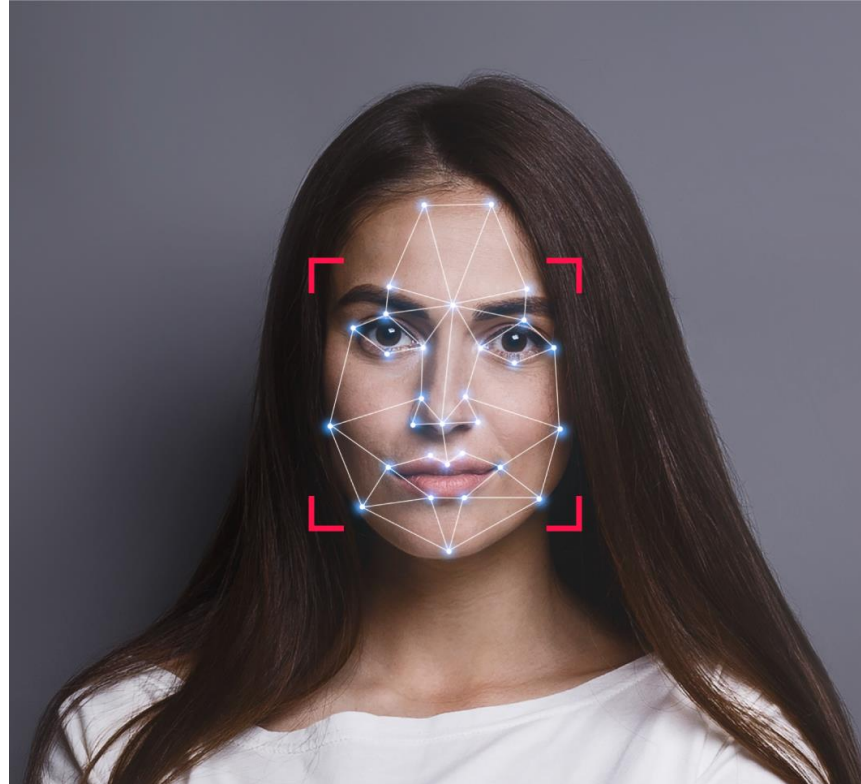
# IOT plus other digital and new technologies

- Monitoring equipment
- Monitoring people
- Drones
- Remote access technologies



# IOT plus other digital and new technologies

- Monitoring equipment
- Monitoring people
- Drones
- Remote access technologies
- Face recognition



## What is facial recognition?

It's a software application that verifies your identity through:

- 1 Face Detection
- 2 Face Analysis
- 3 Converting Image to Data
- 4 Finding a Match

REC  
FACES



A person in a dark suit and tie is holding a tablet. The tablet screen and the background are filled with digital imagery. A central globe is connected by a network of white lines to various nodes. To the left, a blue line graph with an upward-pointing arrow is visible. To the right, a laptop screen displays colorful data cubes and charts. A smartphone is also visible, showing a grid of images. The overall theme is digital technology and data.

# A digitised future for risk management & insurance ...

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Many questions - What will it look like? What is your role? What challenges does it bring?

## Where do you stand? – Question 4

4. Does digitisation of risk management and insurance:?
- A. Excite you
  - B. Worry you
  - C. Both



# Feedback form questions

- Question time
  - Type in a word that gives a **characteristic** of how you see risk management 10 years into the future
  - Type in a word that gives a **challenge** associated with how you see risk management 10 years into the future





# Thank you

*Any questions and what are your thoughts on the digital future?*

# Accessing the webinar recordings

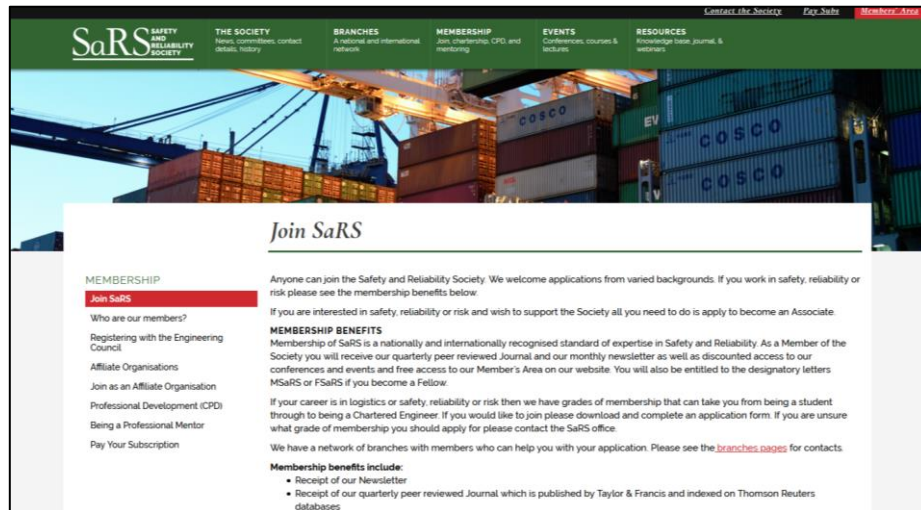
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- All webinar recordings are archived under the Resources Tab on the SaRS website
- SaRS members can access this archive as a member benefit:
  - You can join as a full member, or
  - The simplified **“Associate of the Society”** grade which gives you access to all the SaRS resources including the webinars.
  - See [www.sars.org.uk](http://www.sars.org.uk)
- This webinar recording will be available in a couple of days so keep an eye out if you want to see it again

# JOINING SARS

If you aren't a member and have enjoyed this webinar please take a look at our website, see the benefits of membership and join us.

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We accept membership applications from candidates from all relevant backgrounds – membership is open to everyone from students to experienced professionals

More information available at [www.sars.org.uk](http://www.sars.org.uk)



# UPCOMING WEBINARS – THE 2021 PROGRAMME

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- Asia-Pacific Branch is presenting its second webinar - **Safety Leadership though the application of system assurance** – 6<sup>th</sup> July 2021 at 15:00 Hong Kong time, 17:00 Melbourne time and 08:00 UK time - presented by Nelson Ng, Chief of Operations Engineering at MTR in Hong Kong.
- Solent Branch Webinar - **Asset Management** – 14<sup>th</sup> July at 12:30 UK time – presented by John Skelton Asset Performance Services Business Line Lead within BMT Defence & Security UK Ltd.

# UPCOMING WEBINARS – THE 2021 PROGRAMME

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- The 5 Part Technical Learning Webinar series on **Functional Safety** – continues with Part 4 being presented on 21st June 2021 at 13:00 UK time – presented by Dr Fan Ye of Engineering Safety Consultants Ltd.

# FEEDBACK

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- I am now going to initiate a feedback form
- Please can I ask you to fill it in before you exit the webinar
- The information is vital for us to improve our offering
- Please take two minutes to fill it in and click Submit
- Your CPD Certificate will be sent to you if you requested one at registration
- Thank you very much and STAY SAFE