The New Energy Context – Dec 2017

insight engineers regularly cover and publish topics of interest to our clients and prospects.

Traditional internal combustion powered vehicles account for over 95% of the UK & European market. Until recently a fringe choice, the reality of electric plug-in vehicles soon becoming more mainstream was given a major prompt when GB & France governments announced this summer that no new petrol-only or diesel powered cars & vans will be sold after 2040 and both Germany and The Netherlands announced they were aiming for an earlier timing. Norway have declared that all forms of petrol and diesel vehicles will no longer be permitted to sell from 2020. In recent months most main car manufacturers have begun to confirm that all/most new models will have electric powertrains in the near future (2-3 years).

Aided by this backdrop and increased PR and coverage of global warming, for example it is estimated by Client Earth that more than 400,000 early deaths are caused each year by air pollution in Europe, the pace of change around vehicle usage and regulation has continued to step up – larger GB cities are announcing ULEV zones and the new T-charge on older diesel cars was introduced in London in October 2017. The results of an early survey on the T-Charge conducted by BuyaCar.co.uk (n=1300) found that of those who travel to London regularly, many claim to have already switched to public transport in lieu of paying the T-Charge. Findings indicate more drivers are commuting into London, putting increased strain on public transport Diesel drivers (34%) were more likely to use public transport than petrol drivers (30%), and similarly diesel drivers were more likely to consider buying a new car (11%) than petrol drivers (7%)

So in November 2017 we ran our own series of questions to establish the State of the Nation in this greener landscape and to look at the UK population's understanding and relationship with the evolving energy landscape. We ran the following questions on the Opinium nationally representative omnibus vehicle (http://opinium.co.uk) across 2 separate fieldwork periods in November 2017 (14th -16th, base n=2003 and 17th-23rd, base n=2004) and now share those top=line findings:

Q1: How concerned or unconcerned are you about C02, Nitrogen Oxides (NOx) and particulate emissions on the air-quality where you live? *(n=2,003)*

Q2: Where is energy provided to our national electricity grid from? *(n=2,004)*

Q3: Where is 'green or sustainable energy' provided to our national electricity grid from? *(n=2,004)*

Q4: You have probably begun to hear talk of 'green or sustainable energy', what is your understanding of this term? *(n=2,003)*

Q5: For your next vehicle for personal use, what type of engine are you seriously considering as your main choice? *(n=2,003)*

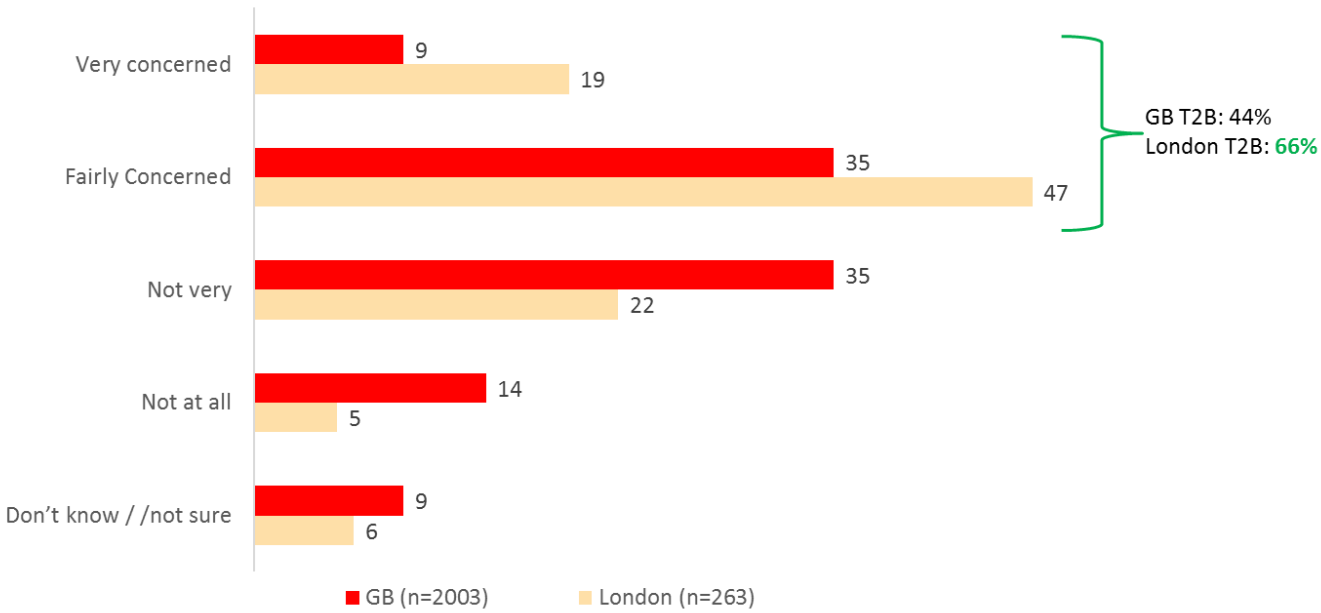
Air Quality:

Q1: How concerned or unconcerned are you about C02, Nitrogen Oxides (NOx) and particulate emissions on the air-quality where you live? *(n=2,003)*

2/3rds in London claim they are concerned (19% Very + 47% Fairly), more than 20% points higher than in GB overall.

With rising awareness & recent publicity surrounding air quality in our cities, especially in the capital, it is perhaps not surprising that 2/3rds of Londoners are concerned about air quality. Toxic air has been attributed for an annual death toll of 9,000 in the capital alone. By the 6th January 2017, London broke its annual air pollution limit for 2017, therefore it is not surprising that Londoners are more concerned about Air Quality then the rest of the UK.

Slightly under half of the rest of Great Britain (44%) claimed they were currently concerned about air quality. However, within the EV Industry and commentary & discussion from bodies such as the Energy Savings Trust, The Renewable Energy Association and Client Earth, it is clear councils and businesses are focussing much more on educating & engaging with other businesses, their own staff and local communities to try to tackle air quality issues – for example with car pooling and home working policies, backed by uptake of government grants for Work and Home Charge schemes



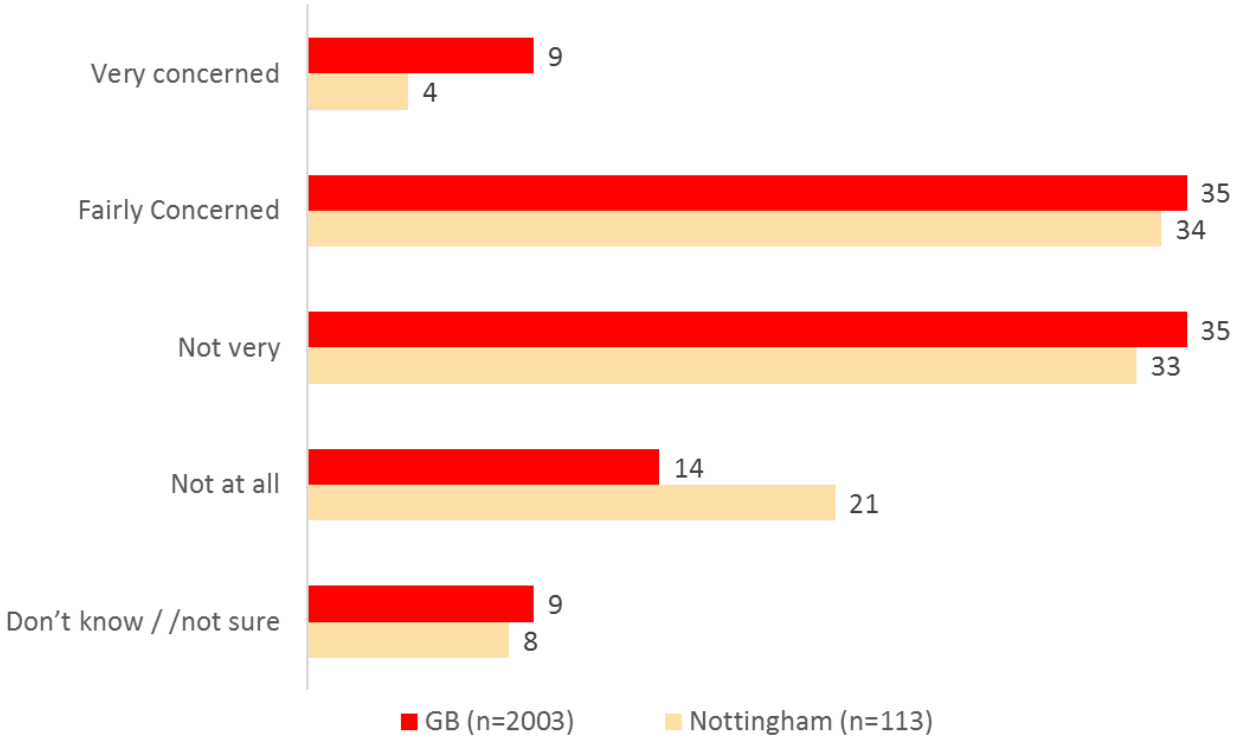
Air Quality:

Q1: How concerned or unconcerned are you about C02, Nitrogen Oxides (NOx) and particulate emissions on the air-quality where you live? *(n=2,003)*

There is less of a concern about Air Quality in Nottingham due to investment in sustainable transport solutions supported by the Department of Transport and engaging with the community.

Nottingham was declared a Go Ultra Low City 12 months ago based on the amount of work that had been carried out to reduce CO2 and NOx emissions and local inhabitants seem to be reflecting those efforts in indicating that the air quality in the city is rated better than GB overall – and much better than those who live in London.

If you are interested in another Go Ultra Low City, please contact us.



Source of Energy:

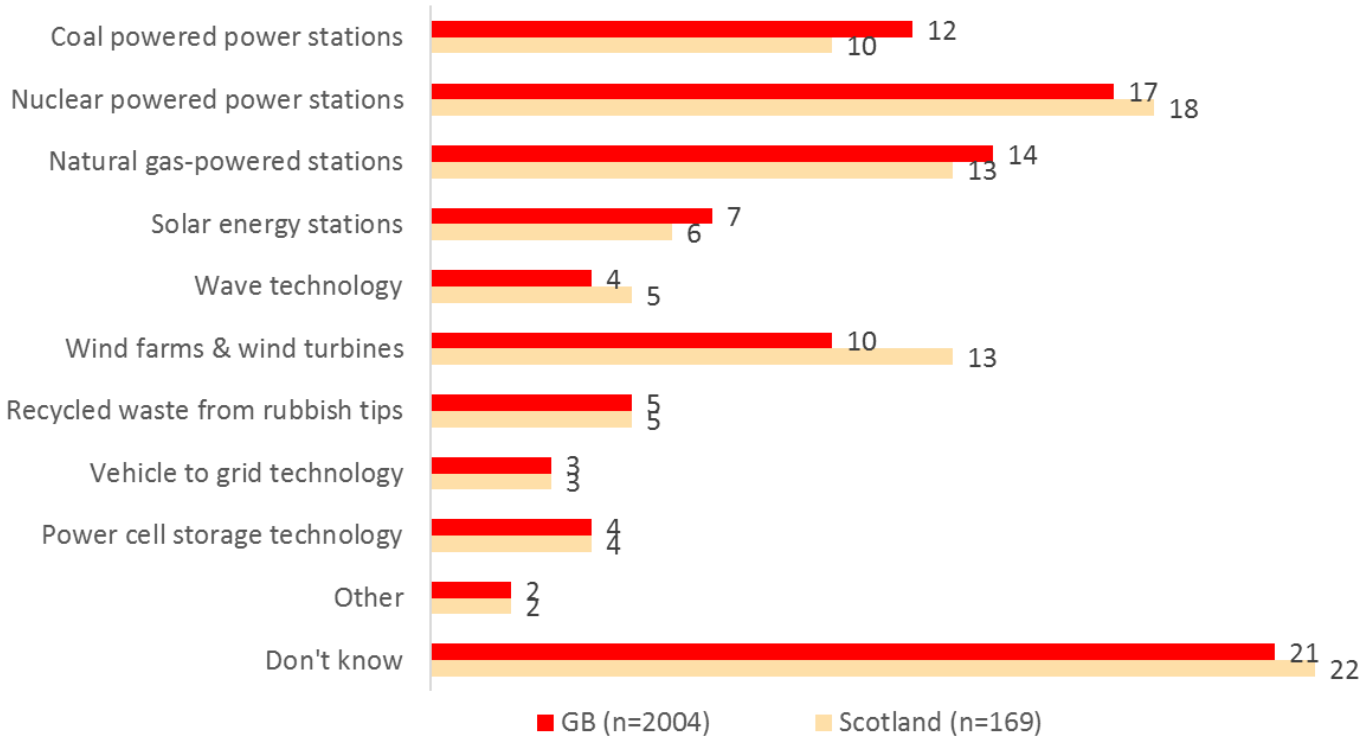
Q2. Where is energy provided to our national electricity grid from? (n=2,004)

1/5th do not know and what they have given as answers are not accurate based on information from MyGridGB on Twitter at 08.00 today (Dec 20th 2017) - Wind 8.6%; Coal 16.4% Nuclear 15.7%; Gas 51.4%; Hydro 1.6%; Import 0.0%; Solar 0.0%; Biomass 4.6%; Storage 1.5%. Total Demand is 44GW. Ofgem provides the best reference over time and takes account of seasonality: https://www.ofgem.gov.uk/data-portal/electricity-generation-mix-quarter-and-fuel-source-gb

Hence, it appears that the source of provision of energy is not yet a major interest area, though as a result of the Paris Climate Agreement, the British and other global governments are now pushing for more sustainable energy solutions and phasing out "dirty" fuels (diesel especially & then petrol) in favour of cleaner future fuels such as electric, LPG, CNG, Biofuels and Hydrogen.

After 'Don't Know', the highest UK source mentioned by the public is 'nuclear', (it is actually gas). However there is a steady growth in sustainable energy from wind, solar and tidal. As wind turbines, solar panels and tidal energy products reduce in cost the growth of the sustainable energy solutions will increase therefore enabling us to have a "Smart and Greener Grid".

Solutions such as Vehicle 2 Grids whereby electric vehicles are used as a power storage battery are potentially revolutionary ways of supporting the demand on the national grid. Tesla's power cell storage (although not involving EVs) has proved to be a great success for Costa Rica in the aftermath of the Hurricane that decimated its energy sources on the island in 2017.



Green/sustainable Energy:

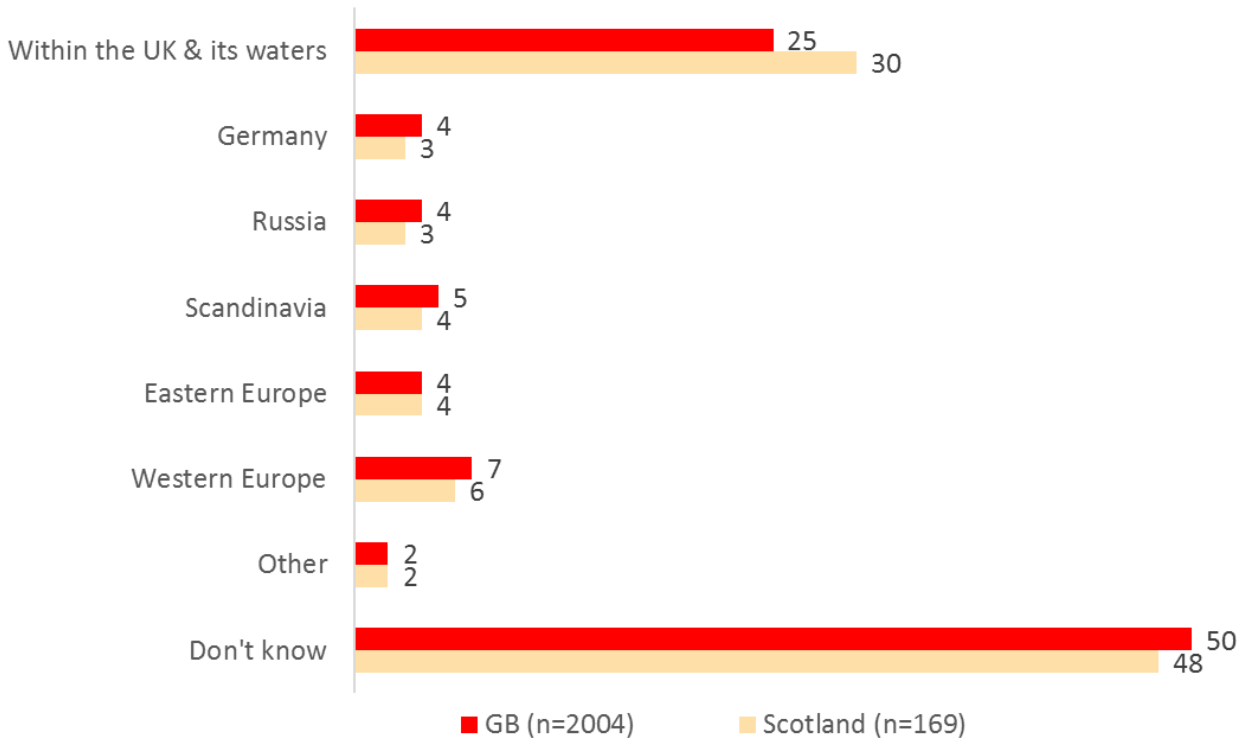
Q3: Where is 'green or sustainable energy' provided to our national electricity grid from? (n=2,004)

In line with the previous question, it is startling that half of people do not know where green or sustainable energy is provided to our national Grid from.

Green or Sustainable Energy for the UK is predominantly sourced from the UK and it's national waters.

Natural gas is not Green or Sustainable in the normal meaning of Renewables, but some natural gas is being provided through interconnectors with Western Europe and through international LNG deliveries to UK onshore terminals. In future, the new Fracking mines to be set up in the UK, will also contribute.

It was surprising to us to see such a similarly high "Don't Know" response in Scotland as a high volume of sustainable energy for the UK comes from the waters round the Scottish Coastline through tidal and offshore wind farms.



Green/sustainable Energy:

Q4: You have probably begun to hear talk of 'green or sustainable energy', what is your understanding of this term? *(n=2,003)*

Whilst a very small minority expressed their negativity around green or sustainable energy being a marketing mechanic to help utilities and big service companies make more money, the vast majority understand the benefits of this type of eco-energy as being better for the environment and being cleaner, healthier and kinder to the planet by stopping & reducing use of fossil fuels (coal & gas).

People clearly understand it is about using renewable & natural sources such as wind, sun and waves to reduce pollution and being better than carbon neutral.

What many may not yet realise is that the growth of the sustainable energy industry is providing a large number of job opportunities as well.

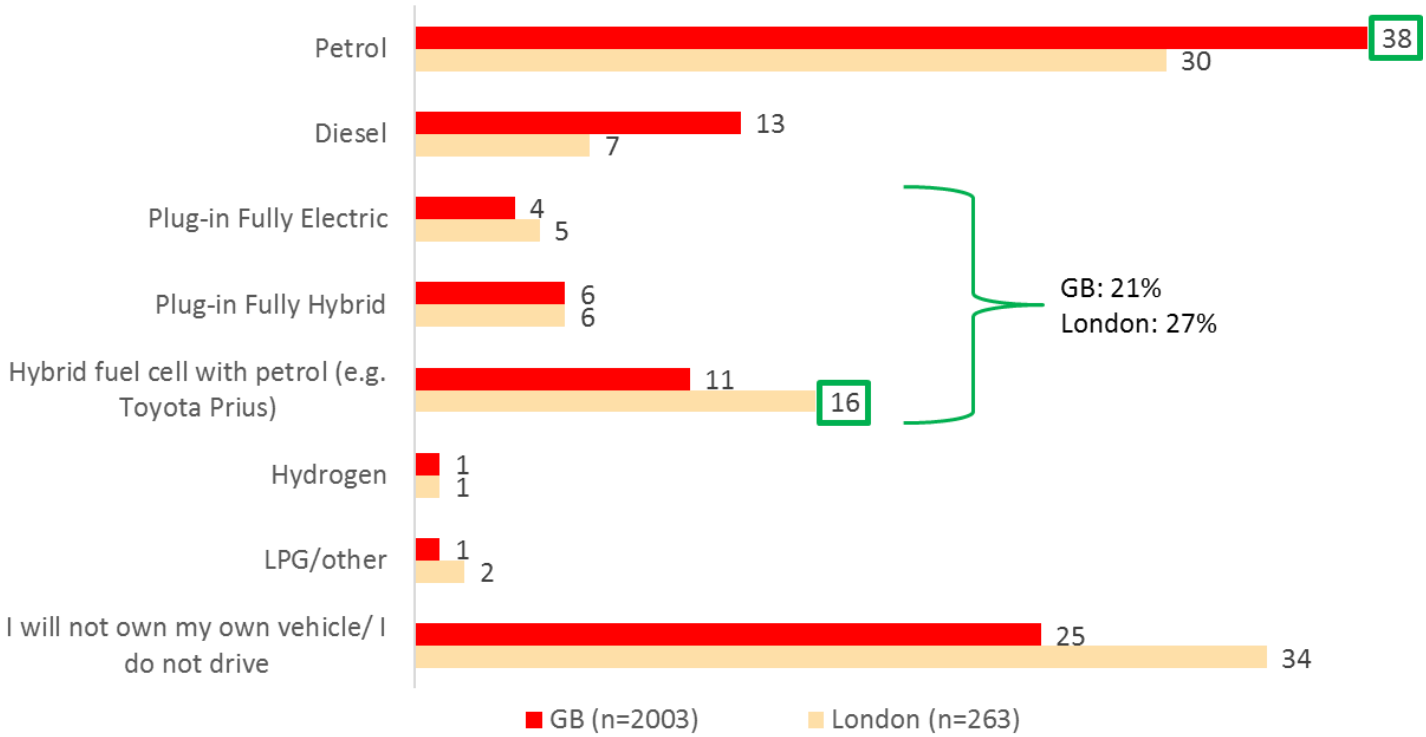
Plug-in vehicle choice:

Q5: For your next vehicle for personal use, what type of engine are you seriously considering as your main choice? *(n=2,003)*

Sales in diesel vehicles have decreased drastically in 2017 and the fuel type of vehicle as a next choice reflects this steady decrease in consideration of diesel powered vehicles for the next vehicle, on average 2.5 to 3.0 years in the future. Although diesel engines produce a multitude of emissions including Nitrogen Oxides, petrol engines produce a large amount of CO2 from their catalytic convertors, which also needs to be reduced as it is a greenhouse gas.

Many of those that are looking at going electric as their next vehicle are looking at taking a plug-in electric hybrid vehicle (PHEV). This is due to range anxiety and current purchase list price of electric only vehicles and also the perceived lack of charging points. The consensus was that a PHEV was the stepping stone to going fully electric as a second car in the medium term future when the industry will have improved and redressed current perceived weaknesses.

Interestingly, other data we have seen, indicates that it is the millennial generation & city dwellers who feel that owning a car is no longer a must-have solution for travel. For the younger generations (up to 34 years old), the use of public transport, rental or hire vehicles, car sharing or pooling schemes and actually working from home are seen as far more cost efficient routes which results in a cleaner environment. Most city dwellers will say that owning a vehicle is too costly with the addition of parking permits, congestion & T-charges.



Comment

The energy context we live in is changing. By 2016, nearly 5 million Smart Meters had been installed in domestic homes (to be completed by 2020) and educational attention is now shifting towards the wider energy context such as the use of sustainable travel, a longer-term solution to reducing emissions in both our cities and across the UK. However lack of knowledge and accessibility to available knowledge is proving to be a challenge for businesses and private individuals.

The main uptake of electric vehicles is currently within the fleet industry which is now a major spokes channel on the issues that lie ahead - as diesel vehicle purchases are discouraged. One of the major questions is "where is all the energy going to come from?". There are multiple answers to this question which include the growth of the sustainable industry as well as changing peoples mindsets on how we use transport in the future.

Both the energy industry as well as the electric vehicle industry in the UK agree that the most significant influence in making changes is the provision of information and explaining the cost savings as well as providing cleaner and more efficient vehicles, with matching national infrastructure for appropriate recharging or refuelling.

As the technology on electric vehicles, batteries & charging points improve, and costs reduce, it will not be long before vehicles with a range of 400 miles and a charging time of under 15 minutes will be here. The advent of the autonomous vehicle will be a further ground breaker for electric vehicles.

However the way we live in the future may have the biggest influence overall as businesses encourage staff to car share or office workers to work from home as video conferencing tech such as Skype, FaceTime, and Go to Meeting become the norm. This could provide a huge reduction in fuel costs to a business as well as a reduction in facility management costs. From the staff's point of view a benefit will be a better work life balance as the stress & time of commuting is removed and hopefully businesses will see an uplift in productivity as current economic forecasters desire.

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Please contact us on 01753 916 908 or via e-mail at insights@insight-engineers.com if you would to discuss how these results might be adapted for your organisation. If you would like a specific theme covered in the future, please send your suggestion to insights@insight-engineers.com

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