Government Statistical Service Conference 2019

Sheraton Grand Hotel and Spa, Edinburgh 1st and 2nd October 2019

GSS Conference 2019: Our Statistics, Today's Issues



Official Event Partner:



#GSSConf2019

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Foreword

Francesca Parrott and Michael Cole, Conference Committee Co-Chairs

Welcome

As the co-chairs of this year's organising Committee we are honoured to welcome you to Edinburgh. We have a packed agenda over the next two days, inspired by this beautiful city.

This year's conference, titled "Our Statistics, Today's Issues", aims to unpick how the work we all do informs policy and decision making on the important issues of society now and in the future.

We encourage you to learn from the wide-ranging talks on offer from our GSS colleagues, our sponsors and external data professionals. The conference is an important opportunity to strengthen your professional network; we hope you will seize that opportunity, meet with colleagues and exhibitors and create new connections. We hope you will be inspired while at the conference, taking back what you have learned to your departments to continue the great work of the GSS.

Enjoy the conference!

Francesca & Michael



Venue Details

Conference venue: Sheraton Grand Hotel and Spa, Edinburgh, 1 Festival Square, Edinburgh, EH3 9SR.

The venue is a 10-15-minute walk from Edinburgh Haymarket train station and a 20-25minute walk from Edinburgh Waverley train station.



General Information

Badges

Conference attendees are asked to wear their badges and lanyards at all times while in the conference. They contain important information such as your parallel session allocation and your table number for the evening dinner.

Dietary Requirements

For those attendees who have notified the organisers of dietary requirements, the conference organisers have made arrangements for the lunch and evening meals. If there are any extra requirements needed, please contact a member of the Conference Committee.

Getting Help

If you need help with anything during the conference, just grab a member of the Conference Committee – We're wearing matching blue t-shirts so should be easy to find!

Luggage

A luggage store will be available for use. If you need access, please talk to a member of staff or a Conference Committee member.

Mobile Phones

We ask that you switch your mobile phones and other hand held devices to silent when you are in the sessions. If you need to respond to emails or make any calls, please use the registration area.

Session Locations

Keynote sessions will be held in the Edinburgh Suite.

Parallel sessions will be held in either the Edinburgh Suite, Melville Suite, Glamis Suite Braemar Suite or the Private Dining Room (accessed through the Sheraton One Square Restaurant). All of these are on Level 1.

The parallel sessions that you have been assigned are printed on your lanyard, we ask that all delegates attend their assigned parallel sessions (assignments were based on preferences provided on the delegate forms) to ensure rooms are not overcrowded.

Wi-Fi Access

You will find information on how to access the Wi-Fi on the rolling slides in the Edinburgh Suite in-between speeches and also at the Registration desk. Please contact a member of the Conference Committee if you need help accessing the Wi-Fi.

DAY 1 – 1 st October 2019			
9:30 – 10:45	The Atrium	Registration	
10:45 – 10:55	Edinburgh Suite	Welcome and Opening Remarks	
10:55 – 11:15	Edinburgh Suite	lain Bell (Deputy National Statis	tician)
11:15 – 12:00	Edinburgh Suite	Keynote Speaker: John Curtice	
12:00 – 12:15	The Atrium	Break	
		Parallel Session 1	
		Inspecting the Police: Using Evidence and analysis to drive improvement	Hannah Husband and Francesca Allerton (HMICFRS)
	1.1 Edinburgh Suite	Homelessness: A policy priority across the UK but no consistent UK definition. How the GSS are overcoming this to improve user understanding of statistical comparability.	Catherine Davies and Tony Wilkins (ONS)
12:15 -	1.2 Private Dining Room (13:00 finish)	Around the World with Government Data	ESRI (Gold Sponsor)
13:15	1.3 Melville Suite	Regression modelling to understand the relationship between ethnicity and school exclusions	Louise Freebrey (DfE)
		Dependent on Dover? Estimating and visualising the value of EU trade by UK port of entry for consumer goods	Jonathan Lewis (BEIS)
	1.4 Braemar Suite (13:00 finish)	A Welsh Brexit: Understanding geographical vulnerabilities	Ann Humble & Stephanie Howarth (WG)
	1.5 Glamis Suite (13:00 finish)	Health & Care Statistics in Scotland	Scott Heald (ISD Scotland)
13:15 – 14:15	The Atrium	Lunch	

DAY 1 – 1 st October 2019 continued				
	Parallel Session 2			
14:15 – 15:00	2.1 Edinburgh Suite	Starting AI and ML offers significant benefits – but how do we ensure explainability?	Mango (Official event partner)	
	2.2 Glamis Suite	Starting the conversation: how Ofsted uses data to improve the quality of education	Jason Bradbury (Ofsted)	
	2.3 Braemar Suite	Fair Work Measurement Framework & Survey	Ludmila Kopaskova (SG)	
	2.4 Melville Suite	Operational Earthquake Forecasting	lan Main (University of Edinburgh)	
	2.5 Private Dining Room	DFID: Doing data and statistics for development	Paula McLeod (DfID)	
15:00 – 15:15	The Atrium	Break		
15:15 – 15:25	Edinburgh Suite	Official Event Partner		
15:25 – 16:00	Edinburgh Suite	Panel Session: Using Big Data & Al for Government		
16:00	Edinburgh Suite	te Close		

DAY 1 Evening – 1 st October 2019		
18:00 – 18:45	The Atrium	Drinks Reception
18:45 onwards	Edinburgh Suite	Presentation of the GSS Awards Evening Dinner

DAY 2 – 2 nd October 2019			
9:30 – 10:00	The Atrium	Arrive	
10:00 – 10:45	Edinburgh Suite	Keynote Speaker: Hetan Shah	
		Parallel Session 3	
	3.1 Edinburgh Suite	Interactive visualisation solutions	Jumping Rivers (Gold Sponsor)
	3.2 Glamis Suite	Building a Data Science Campus in Rwanda	Emily Poskett & Ceri Regan (ONS)
10:45 – 11:30	3.3 Melville Suite	Using data to inform and evaluate public health policy in Scotland	Mark Robinson (NHS Health Scotland)
	3.4 Braemar Suite	Gender profiles in UK and worldwide patenting: An analysis of female inventorship	Pauline Beck & Christopher Harrison (IPO)
	3.5 Private Dining Room	Improved evidence to support EU Exit	Jane Naylor & Amelia Ash (DExEU)
11:30 – 11:45	The Atrium	Break	
		Parallel Session 4	
11:45 – 12:45	4.1 Melville Suite	Beyond the silo: How cross- government collaborative working is informing the Adult Social Care policy debate	Jason Snowden, Sarah Liley & Angus Gibson (DHSC/NHSD/MHCLG)
		Understanding Consumer Vulnerability in the Communications Markets	Grainne Murphy & Donna Phillips (OFCOM)
	4.2 Glamis Suite (12:30 finish)	Why the Civil Service leads the way, but does not realise it	SAS (Gold Sponsor)
	4.3 Edinburgh Suite	Using a 'life expectancy decomposition' method to understand the drivers of change in life expectancy over time, and of inequality in life expectancy.	Emma Parker & Leigh Dowd (PHE)
		Enabling ethically appropriate uses of data for research and statistics for the public good	Emily Mason-Apps (UKSA)
	4.4 Private Dining Room (12:30 finish)	Data Quality: Do the public even care?	Fiona Shepherd (HO)
	4.5 Braemar Suite (12:30 finish)	Energy Use Over the Last 70 Years; What it has told us and how methods have changed.	Warren Evans (BEIS)
12:45 – 13:45	The Atrium	Lunch	

DAY 2 – 2 nd October 2019 continued			
		Parallel Session 5	
13:45 – 14:30	5.1 Edinburgh Suite	What to Expect When You're Not Expecting: The Novichok Chronicles	Victoria Cox and Philippa Spencer (DSTL)
	5.2 Private Dining Room	The Gender Data Gap	Elizabeth Gray (Fast Stream)
	5.3 Braemar Suite	Finding an Impactful Government Career using R, Power BI and Web-scraping	Tobias Jolly (CO)
	5.4 Melville Suite	The Indices of Deprivation in the UK 2019: Methods, Data and Policy impact	Bowie Penney, Elizabeth Frazer & Samantha Collins (MHCLG/SG/WG)
	5.5 Glamis Suite	Using Machine Learning to Analyse Text Data in Defence	Alexandra Pop (MoD)
14:30 – 14:45	The Atrium	Break	
14:45 – 15:30	Edinburgh Suite	Keynote Speaker: Gillian Docherty	
15:30	0 Edinburgh Suite Close		

Official partner for GSS Conference 2019

MANGO Solutions

Mango Solutions takes a very pragmatic approach to embedding data science at the heart of decision-making. By empowering organisations to make informed decisions using data science and advanced analytics, we ensure organisations have a clear understanding of the outcomes they can expect, the skills and resources they will need and the challenges they are likely to encounter.

Gold Sponsors for GSS Conference 2019

SAS is a trusted analytics powerhouse for organizations seeking immediate value from data, with varying AI and analytical solutions, deployed in a way which suits you, together with broad industry knowledge we can help you discover insights from your data and make sense of it all. Identify what's working and fix what isn't. Make more intelligent decisions. And drive relevant change. sas.com





Esri is the global market leader in GIS. Since 1969, Esri has helped customers unlock the full potential of data to improve operational and business results. Deployed in more than 350,000 organisations including the world's largest cities, national governments, 75% of the Fortune 500, colleges and universities around the world.

Jumping Rivers is a leading provider of bespoke training and consultancy in both R & Python. Our training courses have been recognised by the Royal Statistical Society and our trainers have been certified by RStudio. As one of only seven RStudio Full Service Certified Partners, we have a variety of plans for managing RStudio products. From ondemand support to full care plans. If R or Python is crucial to your organisation, we can help.



Bronze Sponsors for GSS Conference 2019













Scottish Government Riaghaltas na h-Alba gov.scot



GSS Awards



The first GSS Awards will be held on the first evening of this year's conference. The awards will recognise and celebrate the excellent work being done across the GSS. There will be four awards presented to teams from across the GSS in the categories of:

- Collaboration
- Methods
- Communication
- Impact

Nominees

Details of the Award nominees can be found on the following two pages.

Judging Panel

The Awards were judged by the following expert panel:

- Siobhan Carey: Head of Profession for Statistics, NISRA
- Robert Cuffe: Head of Statistics, BBC
- Ed Humpherson: Director General for Regulation, UKSA
- Neil McIvor: Head of Profession for Statistics, DfE
- Julie Stanborough: Head of Best Practice & Impact Division, ONS

Awards Presentation

The Awards will be presented by Iain Bell (Deputy National Statistician) before the evening dinner. Please ensure you are seated by 18:45.

Collaboration

This award recognises collaboration between teams, departments and/or external organisations/researchers to deliver a statistical output or project. The short-listed nominations for this award are:

Title of nomination Team <i>Department</i>	Main contact
Pioneering statistical partnerships in developing countries International Development Team Office for National Statistics	nicholas.palmer@ons.gov.uk
Measuring the mental health of children and young people in England Mental Health of Children and Young People Survey Team NHS Digital, Office for National Statistics, NatCen Social Research, YouthInMind and Professor Tamsin Ford at University of Exeter	a.neave@nhs.net
Collaboration to provide a better evidence base for users of international migration statistics Centre for International Migration, Office for National Statistics and Migration Statistics, Migration and Border Analysis, Home Office Analysis and Insight <i>Office for National Statistics and Home Office</i>	nicola.rogers@ons.gov.uk
Reproducible Analytical Pipelines RAP Champions Cross-Government	martin.ralphs@ons.gov.uk

Methods

This award recognises innovation in methods of data collection, statistical analysis and data science. The short-listed nominations for this award are:

Title of nomination	
Team	Main contact
Department	
Adjustments for changes in severity reporting in	
road accidents statistics	
Road Safety Statistics team in collaboration with	delphine robineau@dft.gov.uk
Methodology Advisory Service	
Department for Transport in collaboration with Office	
for National Statistics	
Understanding influences on public perception	
Internal Communications and Data Science Team	neter hufton@communities.gov.uk
Ministry of Housing, Communities and Local	peter.nution@communities.gov.uk
Government	
Reproducible Analytical Pipeline	
Quality Indicators Team	robyn.munro@nhs.net
NHS National Services Scotland	
Synthetic Data: Everyone's VAE-GAN	
Data Management and Strategic Development	euan.gardner@nhs.net
NHS National Services Scotland	

Communication

This award recognises clear and successful presentation and dissemination of statistics using commentary, visualisations, interactives, social media etc. The short-listed nominations for this award are:

Title of nomination	
Team	Main contact
Department	
Explore Education Statistics	
Statistics Modernisation Team	laura.selby@education.gov.uk
Department for Education	
Interactive visualisations of GCSE and A level	
grade outcomes in England	
Data and Analytics	Stephen.Rhead@ofqual.gov.uk
Office of Qualifications and Examinations	
Regulation	
Innovative Communication of Automation	
Policy Evidence and Analysis Team (PEAT), and	androa lacov@one dovuk
Digital Content Team	andrea.lacey@olls.gov.uk
Office for National Statistics	
Putting users at the heart of statistical	
bulletins	Kieran Fordo@ons.gov.uk
Content design	<u>Kieran.Forde@ons.gov.uk</u>
Office for National Statistics	
Improving the communication of statistics at	
National Records of Scotland	asther roughood a Opropotional country
Statistical Promotion and Analysis Team	
National Records Scotland	

Impact

This award recognises statistics which have been impactful through use, influenced decisions made by policy-makers, politicians or the public and/or have contributed to public debate. The short-listed nominations for this award are:

Title of nomination	
Team	Main contact
Department	
Recent trends in mortality in England	
Population Health Analysis	allan.baker@phe.gov.uk
Public Health England	
Preparing estimates of housing need for Wales	
(2018-based) to meet user need	Molonia Prown004@govywalaa
Housing Need statistics team	Melanie.brown004@gov.wales
Welsh Government	
Improving the experiences of disabled people on the	
rail network	chris casanovas@orr.gov.uk
Information & Analysis	<u>crins.casanovas@on.gov.uk</u>
Office of Rail and Road	
Road networks through a new lense	
Network Condition and Geography team	Sarah.Lasher@dft.gov.uk
Department for Transport	

Keynote Speakers

John Curtice



Sir John Curtice is a Professor of Politics at Strathclyde University in Glasgow, a Senior Research Fellow at NatCen Social Research and a Senior Fellow of the ESRC's 'The UK in a Changing Europe' initiative. He has written extensively about voting behaviour in elections and referendums in the UK, as well as on British political and social attitudes more generally. He has

been a co-editor of NatCen's annual British Social Attitudes reports series for over twenty years, and is a regular contributor to British and international media coverage of politics in the UK. John is Chief Commentator at two websites, whatscotlandthinks.org and whatukthinks.org/eu, that provide a comprehensive collection of materials on public attitudes towards how Scotland should be governed, and the UK's relationship with the EU. He is a Fellow of the British Academy, the Royal Society of Edinburgh and the Academy of the Social Sciences and is an Honorary Fellow of the Royal Statistical Society.

Hetan Shah

Hetan is the executive director of the Royal Statistical Society, a membership body that has a vision of a world with data at the heart of understanding and decision-making. He is deputy chair of the Ada Lovelace Institute, which seeks to promote data and Artificial Intelligence (AI) that work for people and society. He is a visiting professor at the Policy Institute of King's College London and chair of the Friends Provident Foundation, a grant-making trust. He is a member of a number of advisory boards including for the Office for National Statistics Data Science Campus, the Science Media Centre and the National Lottery Community Fund. He has also been a member of the Social Metrics Commission, chaired by Baroness Philippa Stroud, which recommended new ways of measuring poverty in the UK.



Keynote Speakers continued

Gillian Docherty



Gillian Docherty is the chief executive of The Data Lab, an innovation centre with a mission of maximising the value from data for Scotland. The Data Lab facilitates partnerships between industry and academia, supporting data science and AI projects as well as funding and running groundbreaking education programmes. Gillian is passionate about the opportunities for using data to drive economic and social benefits. Formerly of IBM, she is a

visiting professor at Robert Gordon University, a TED speaker and was named Digital Leader 2018 for the UK. She was named CEO of the year at the Digital Technology Awards 2017 and was also in the UK's top ten most influential people in data according to DatalQ. She is on the Board of Glasgow Chamber of Commerce, a trustee of BeYonder Involve Charity and an Industry advisor to Previse. She has a degree in Computing Science from the University of Glasgow, an honorary doctorate from Robert Gordon University and is married with a daughter.

Panel Session

The theme of this year's panel session is "The uses of 'Big Data' and Artificial Intelligence across government". This session will bring together a variety of perspectives, including academics, Civil Servants and industry professionals. Panel members are:

- Ed Humperson, Director General for Regulation at the UK Statistics Authority, who has previously worked on strategy and regulation for the National Audit Office.
- Kevin Fletcher, Chief Data Officer at HMRC, who has previous experience on working on tax analysis and economic policy at the National Treasury of South Africa.
- **Dr Zeynep Engin**, Founder of Data for Policy, and Senior Research Associate at the Urban Dynamics Laboratory at UCL and Principal Investigator for the GovTech Lab.
- A representative from the Alan Turing Institute's Public Policy Programme which works with policy makers on data-driven solutions to public services.

Parallel Sessions

	DAY 1 – 1 st October 2019	
Parallel Session 1		
1.1	Inspecting the Police: Using evidence and analysis to drive	
Edinburgh Suite	improvement.	
	Hannah Husband & Francesca Allerton (Her Majesty's	
	Inspectorate of Constabulary and Fire & Rescue Services)	
	HMICFRS are responsible for independently assessing the efficiency	
	and effectiveness of police forces, in the public interest. Our evidence	
	is gathered through inspections on ten key areas of policing, including	
	the quality of investigations and protecting vulnerable people. It is then	
	used to drive improvements in the services that the police provide to	
	the public, to make everyone safer.	
	To improve efficiency and reduce the burden of inspection activity on	
	police forces, we decided to use the evidence we have on each force	
	to reduce the volume of fieldwork and "boots on the ground"	
	inspections carried out. However, this needed to be balanced against	
	the risk to the public.	
	We will present the approach our analysts developed. This risk-based	
	approach uses a decision tree to determine which areas present	
	sufficient risk to the public and therefore require inspection, whilst	
	imposing a more proportionate demand on police forces to make the	
	inspection process more efficient. The approach uses a mixture of	
	'hard' data (e.g. previous inspection grades, and performance data	
	collected from forces) and 'soft' data (e.g. expert reports identifying	
	areas of concern).	
	We will discuss the results of this approach, the obstacles we faced	
	and how we overcame them, and how we are looking to develop it	
	further for future inspection cycles. We intend to draw in additional	
	intelligence from a range of sources (e.g. external bodies, media	
	sources) to create a broader, more accurate picture of police	
	performance. This will help the inspections team to direct inspection	
	activity in the most efficient and risk-targeted way.	
1.1 cont.	Homelessness: a policy priority across the UK, but no consistent	
Edinburgh Suite	UK definition. How the GSS are overcoming this to improve user	
	understanding of statistical comparability	
	Catherine Davies & Tony Wilkins (Office for National Statistics)	
	What is the issue? Homelessness is a high-profile policy area. People	
	want to compare the scale of the problem across the UK, but this is	
	more complicated than you might think, in part as it is a devolved	
	matter. Homelessness data is often collected through administrative	
	systems which were built using definitions based on each UK country's	
	legislation and therefore data are not directly comparable. As a result,	

	comparisons cannot easily be made at a country or local level, whilst
	UK statistics do not even exist.
	What could be the solution? The GSS Harmonisation Team have
	consulted users and producers of statistics across the UK to develop
	recommendations to improve user understanding of the comparability
	of UK homelessness statistics. The GSS Strategy Delivery Team have
	used the harmonisation work as a basis to compare official
	homelessness statistics across the UK with an aim to begin building a
	UK-wide picture of homelessness and to discuss potential areas of
	coherence and comparability within currently available data.
	In this presentation we will talk about how the differences in devolved
	homelessness legislation across the UK influence the data collection
	and the challenges of engaging with a diverse collection of
	stakeholders across government, devolved administrations, third
	sector organisations and academia. We will discuss how the
	development of enhanced guidance and a conceptual framework aim
	to improve user understanding of the comparability of UK
	homelessness statistics and see what stories about UK homelessness
	we can still tell even with imperfectly comparable data.
1.2	Around the World with Government Data
Private Dining	ESRI (Gold sponsor)
Room	This session will bring together stories from across the world that
	shows government data in action, informing the debate and improving
	outcomes for citizens, by equipping the users with the tools to
	understand and visualise the data on which to make informed
	To achieve this requires access to and sharing of robust and
	authoritative data to support cross government collaboration and
	empowerment of citizens to contribute to public debate and decision
4.0	making about the places and subjects that matter to their communities.
1.3	Regression modelling to understand the relationship between
Meiville Suite	ethnicity and school exclusions
	Louise Freedrey (Department for Education)
	the rate of school exclusions (pupils being expelled) had been decreasing since 2006/07 (when comparable records began) but then
	from 2013/14, we started to see increases each year. We know that
	numis who are expelled are some of the most vulnerable children in our
	society many have special educational needs are from deprived
	areas or receive support from social workers - so increasing trends
	are a widespread cause for concern
	We also know that there are differences in exclusion rates between
	different ethnic groups, with some groups being considerably more
	likely to be excluded than others. So with the backdron of rising
	exclusion rates and differences in likelihood of exclusion for different

	ethnic groups the DfF announced the Timpson review of school
	exclusions in March 2018 This session will explain the data
	development and the regression analysis undertaken to understand
	the relationship between pupil characteristics and school exclusions.
	The presentation will discuss the main results and interpretation of the
	work, the methodological challenges (including rarity of events – less
	than 7,000 permanent exclusions a year – and endogeneity) and the
	identified solutions. The main innovative solutions identified and
	applied were the use of time lags in a panel data structure and unusual
	control variables (such as peer exclusion rates)
	The presentation will also explain how we worked collaboratively with
	other analysta, policy loads, the review load and Ministers to ansure
	the findings (and limitations) were clearly understood anead of the
	landmark publication of the Timpson review in May 2019.
1.3 cont.	Dependent on Dover? Estimating and visualising the value of EU
Melville Suite	trade by UK port of entry for consumer goods.
	Jonathan Lewis (Department for Business, Energy and Industrial
	Strategy)
	If a UK port were to suddenly become unusable, what is the most
	optimal route a container of Radio equipment from Germany would
	take instead to export its products to the LIK. What is the value of all
	Toys entering Dover from Calais, and from which countries and ELL
	norte did they eriginate?
	These are the superficient this are is at since to ensure he developing
	These are the questions this project aims to answer, by developing a
	model that combines Economic and Statistical techniques to estimate
	the most optimal routes for products for over 20 EU directives, from
	every European Country, into the UK. We combined these probabilities
	with existing HMRC data to produce a Trade Mapper, estimating how
	much trade is likely to arrive into each UK port for each type of product.
	The model estimates which types of goods prioritise time over cost and
	vice-versa in deciding the most optimal route. A beta value was trained
	to optimise the sensitivity to using alternative routes on the final output
	This ovidence base descrit yet exist and could be yery useful in
	understanding our trade flows with the EU next Drevit It can for
	understanding our trade nows with the EO post Brexit. It can for
	Instance predict the most likely alternative route to Dover in the event
	of disruption at Dover port. An interactive Transport Mapper dashboard
	has been developed which will allow policy makers to view those ports
	with the highest estimation of trade by product, along with the country
	of origin and which EU port it arrived from. This Dashboard will be live
	at the presentation to showcase the work.
1.4	A Welsh Brexit: Understanding geographical vulnerabilities
Braemar Suite	Ann Humble & Stephanie Howarth (Welsh Government)
	The sim of the geographical vulnerabilities project is to understand the
	anoticl implications of Dravit initially in the context of a no deal
	spatial implications of Brexit, initially in the context of a no deal

	scenario, in order to inform the development of the Welsh
	Government's policy response. It grew out of modelling the impact of
	three Brexit scenarios on agriculture, including on employment and the
	environment. Following demand for similar analysis for other sectors
	we used both academic research and official statistics to identify areas
	of Wales with a high religned on vulnerable economic sectors
	of wales with a high reliance on vulnerable economic sectors.
	Additionally, data such as the weish index of Multiple Deprivation and
	facilities for re- or up-skilling were overlaid on this base risk map to
	understand the potential resilience of communities and their capacity
	to cope with changes in employment as a result of Brexit. The potential
	differential impacts by age, gender and Welsh language were also
	assessed.
	The project has been presented extensively across the Welsh and the
	UK governments (including to Ministers) and with external
	stakeholders. Presenting the analysis in the form of maps has proven
	highly engaging and the response to these presentations has enabled
	the project to grow iteratively. As such, the work has become truly
	cross-departmental and aims to combine a predominately economic
	analysis of the impact of Brexit with an awareness of the interrelated
	impact on areas such as education, employability, social care, health
	and Welsh language
15	Health & Care Statistics in Scotland
Glamis Suite	Scott Heald (Information Services Division Scotland)
	Scotland has some of the best health and care data in the world. Come
	along and find out about the work of the 350+ analysts/statisticians in
	ISD (NHS Scotland's statistics division) how we support the health and
	care system in Scotland and our work on official statistics. Find out
	about.
	• the work of ISD, including our growing number of statisticians based
	• the work of ISD, including our growing number of statisticians based
	inclairy in NHS Boards and local authorities to support the use of data
	and intelligence within local multi-disciplinary teams
	• Our work to modernise our cancer registry, including the use of "virtual
	data techniques" and the development of an intelligence service to
	support clinicians and managers to deliver cancer services;
	• new work we've been doing in the social care space, including our
	exploratory work to link social care and health data to illustrate variation
	in pathways of care.
	• our programme to transform our official statistics, moving away from
	a world of Excel and Pdfs to a world of dashboards and interactive
	content, co-designed with users.
	• our use of the Reproducible Analytical Pipeline (RAP) across the
	organisation, showcasing some of the publications which have been
	organisation, showcasing some of the publications which have been through this process, and our plans to cascade across the whole

	• our development of synthetic data to support researcher access to
	data
	Parallel Session 2
2.1	Al and ML offers significant benefits – but how do we ensure
Edinburgh Suite	explainability?
	Mango (Official event partner)
	Machine Learning has seen an unprecedented development over the
	last decade and offers a great promise of solving various predictive
	problems at scale. However, the most accurate models are often black-
	box - they do not provide an explanation as to why they made a
	particular decision.
	Such uncertainty is undesirable from a technical, legal & ethical
	perspective - allowing bias in key, high-scale decisions such as medical
	diagnosis, promotions and recruitment, even sentence parole. To
	maintain trust in model predictions it is crucial to have access to a
	model's interpretable explanations.
	In this presentation, Dean Wood, Principal Data Scientist at Mango
	Solutions will discuss.
	• The pluans of trusting models based on their accuracy alone, and how base can be unintentionally built in
	• bow this can be avoided and how you can use improved
	explainability to build trust in any advanced analysis
	About the Speaker
	Dean Wood is a Principal Data Scientist at Mango Solutions. Dean has
	a huge breadth of experience gained working across both the public and
	commercial sector This work has covered many areas including
	healthcare with the NHS and Engineering from within a multi-national
	company. With the growth in Data Analytics and a growing desire for
	organisations to become data driven. Dean has gained particular
	experience in helping organisations on this journey including
	maintaining the confidence of non-technical senior leaders in ever more
	complex analytical solutions.
2.2	Starting the conversation: how Ofsted uses data to improve the
Glamis Suite	quality of education
	Jason Bradbury (Office for Standards in Education, Children's
	Services and Skills)
	Ofsted sits at the forefront of shaping education, early years and social
	care policy, acting as a force for improvement through inspection and
	regulation. Data and evidence are at the heart of our work, using real
	statistics such as modelling and significance/inference testing to help
	inspectors and policy makers focus on the right conversations at the
	right time. By reimagining our use of data, we're helping to raise
	standards and improve lives for children across England. Across
	Ofsted, we have worked to create a culture that uses evidence and

	research to drive our policies and inspection, encouraging debate and
	engaging with the sector and parent/carer/provider community to drive ongoing improvement. Our conference presentation will talk through the tools and techniques we use to risk assess providers, inform inspection/regulation and identify providers with unusual movements in their data. We will also share our most recent data science work, data visualisation techniques and our plans to develop new knowledge through collaboration across government and with academia. "Data is the start of the conversation" is our mantra, so – please come along and let's talk.
2.3	Fair Work Measurement Framework & Survey
Braemar Suite	Ludmila Kopaskova (Scottish Government) This session will discuss how to influence decision making through data and measurement, and introduce the tool and measurement framework. The Fair Work Convention has been in place since April 2015 and acts as an independent advisory body to Scottish Ministers. The Convention's vision is that, by 2025, people in Scotland will have a world-leading working life where fair work drives success, wellbeing and prosperity for individuals, businesses, organisations and society. Fair work is defined as work that offers all individuals an effective voice, opportunity, security, fulfilment and respect. In order to help assess if Scotland is on track to become a fair work nation by 2025, keep track of improvements across all aspects of fair work and identify if any demographic groups significantly lack in fair work the Convention developed a Measurement Framework. The Framework translates theory of fair work into practical terms. It overlaps with the NPF, Scottish Labour Market Strategy and Inclusive Growth Strategy so making sure that all data is adequate but still meaningful and understandable to all stakeholders has been crucial. It consists of 40 indicators and uses data from the Labour Force Survey, Annual Population Survey, Annual Survey of Hours and Earnings, Family Resource Survey and Scottish Health Survey. However, there still are gaps in fair work data. To overcome this, the Convention designed an online self-assessment tool for employees. Through a visual tool, employees will be able to assess how their work is fair and receive advice on what they can do to improve it, but it will also collect data & provide a comprehensive picture of workplace practices in Scotland and beyond. We're hoping that the self-assessment tool will help us overcome the problem of low
	response rates to online surveys, while keeping the costs low.
2.4 Melville Suite	Operational Earthquake Forecasting Ian Main (University of Edinburgh) The magnitude 6.3 L'Aquila earthquake occurred in the region of Abruzzo, in central Italy, on 6 April 2009. Some 308 people are known to have died, most in a single student dormitory. Subsequently, six

	public officials were tried for manslaughter for "false reassurance", and
	"an assessment of the risks that was incomplete, inept, unsuitable, and
	criminally mistaken". To address some of the issues raised in risk
	assessment and communication, the Italian government convened an
	International commission on Operational Farthquake Forecasting for
	Civil protection who presented their main findings and
	recommendations to Italian Civil Protection the press and public in
	L'Aquila itself in 2011* As a consequence operational earthquake
	forecasting capabilities are now in place in California, New Zealand and
	Jonan, as well as Italy A surrent ELL Herizan 2020 project has just been
	funded to extend this to Southern Europe
	This presentation will outline some of the incuse related in statistical
	This presentation will outline some of the issues faised in statistical
	seismology as a basis for fisk assessment and communication, notably
	the high background earthquake hazard in Abruzzo, the common
	occurrence of swarm-type extended sequences in Italy, the self-
	exciting point process (epidemic-type) models currently used to
	forecast earthquake occurrence at different magnitudes, and the
	associated uncertainties involved in data assimilation and prospective
	forecasting, as well as how one might communicate the associated
	risks. As a result of a few decades of effort, statistical seismologists can
	be confident that we cannot yet predict individual earthquakes, but we
	can build resilience by designing suitable infrastructure, and, while
	absolute probabilities remain low during earthquake sequences, we
	can provide high gains in probability during periods of elevated hazard.
	*Jordan, T., Y. Chen, P. Gasparini, R. Madariaga, I. Main, W. Marzocchi,
	G. Papadopoulos, G. Sobolev, K. Yamaoka & J. Zschau (2011).
	Operational earthquake forecasting: State of Knowledge and
	Guidelines for Utilization. Annals of Geophysics, 54(4), 361-391.
	doi:10.4401/ag-5350
2.5	DFID: Doing data and statistics for development
Private Dining	Paula McLeod (Department for International Development)
Room	The Department for International Development has a global footprint,
	employing approximately 70 GSG statisticians living and working from
	Afghanistan to Zimbabwe. DFID's largest office is in East Kilbride
	where over 30 statisticians lead on meeting the data and statistical
	needs of – for accountability, communications and decision making
	across the "5 P's" of sustainable development: people planet,
	prosperity, peace and partnerships.
	In this session we will explore the statistical footprint of DFID – covering
	country offices activities: capacity building, programme and partner
	country offices activities: capacity building, programme and partner reporting, and independent monitoring in complex contexts: through to
	country offices activities: capacity building, programme and partner reporting, and independent monitoring in complex contexts; through to the work done by our central teams in producing our National Statistics

	You will gain an insight in to DFID and how the core skills of a GSG statistician translates in to sustainable, and equitable, international development.
DAY 2 – 2 st October 2019	
	Parallel Session 3
3.1	Interactive visualisation solutions
Edinburgh Suite	Jumping Rivers (Gold Sponsor) We discuss some of the data challenges and interactive visualisation solutions that we have developed in collaboration with government organisations, and companies from all sectors. This includes interactive mapping, dynamic reporting, and real-time dashboards. The Environment Agency's Catchment Data Explorer is a public facing web tool that assists in exploring and accessing water environment information. We enhance public engagement and access to key information with the Water Body Explorer through a focus on simple navigation, user customisation, and direct links to underlying data for evidencing reports. For identifying and reducing service outages we provide information rich, mobile applications for utility companies. To improve customer communication, we provide a real-time dashboard and on-site incident
	management tools. To provide both in-house and public reporting we have developed several bespoke web-based data exploration tools. We achieve this by building upon in-house knowledge and expertise, engaging with end-users through focused user groups, and transforming messy data into useful information.
3.2 Glamis Suite	Building a Data Science Campus in Rwanda Emily Poskett & Ceri Regan (Office for National Statistics) The ONS international development team and the Data Science Campus has been supporting the National Institute of Statistics in Rwanda (NISR) in their ambition to be the first NSO in Africa to develop its own data science campus. We have been supporting them in a range of areas including: establishing appropriate legal and policy environment for data sharing, developing a data science capability strategy, recruitment, training, undertaking joint projects, and advising on ICT procurement. This presentation will give an on the ground perspective, and summarise the challenges and lessons learnt, and the relevance for us working in the UK.
3.3 Melville Suite	Using data to inform and evaluate public health policy in Scotland Mark Robinson (NHS Health Scotland) NHS Health Scotland is a national health improvement agency working to reduce health inequalities and improve health in Scotland. Its main roles include: providing evidence of what works to reduce health inequalities; working across different sectors in Scotland to put this

	evidence into action; and supporting national and local policy makers
	to design and evaluate interventions that help build a fairer, healthier
	Scotland. The purpose of this presentation is to share reflections on the
	science and art of using data and statistics to influence public policy by
	drawing on learning from several high profile projects from across the
	organisation.
	These will include: 1) the Monitoring and Evaluating Scotland's Alcohol
	Strategy work programme, which incorporates the evaluation of
	minimum unit pricing; 2) the Scottish Burden of Disease (SBoD)
	project, which uses a wide range of data sources to quantify the
	contribution that different diseases and injuries make to the total
	burden of disease in Scotland, both nationally and locally; 3) the
	investigation into recent patterns in life expectancy and mortality
	trends; and 4) the Informing Interventions to reduce health Inequalities
	(Triple I) project, which uses epidemiological modelling to compare the
	impact of different interventions on mortality and hospital admissions in
	Scotland.
3.4	Gender profiles in UK and worldwide patenting: An analysis of
Braemar Suite	female inventorship
	Pauline Beck & Christopher Harrison (Intellectual Property Office)
	The UK Government has been inspiring girls and women to study and
	build careers in STEM fields – science, technology, engineering and
	mathematics. While educational diversity statistics are comprehensive,
	in industry, however, the statistics primarily rely on 'inputs' data such
	as the number of women employed. Very little data is available on the
	'outputs' of work undertaken by women within STEM industries, but it
	is of great importance to governments and policymakers to understand
	the underrepresentation of women within science and technology.
	Whilst absolute patent counts do not give a direct measure of
	innovation, they can be used to provide a measurable 'output' of STEM
	industries to analyse the inventor demographic, to understand how
	inventor gender influences the patent system. This study by Intellectual
	Property Office uses baseline name-gender datasets, fusing them with
	published patents data from the EPO Worldwide Patent Statistics
	database. It is now possible, with a high degree of confidence, to infer
	gender from inventor name data and provide statistical analysis about
	the patenting activity of female inventors. This study shows that in 1980
	under 4% of patent applications were filed by women. Although this
	figure has increased, the overall percentage of women innovators and
	inventors remains low. Internationally, France, (12.8%), Russia (15.7%)
	and Korea (18.1%) all out-perform the UK (7%). Originally published in
	2016, this research will be refreshed in summer 2019: the results
	provide quantitative data to back up anecdotal evidence about female

	inventors within the IP industry, providing a sound basis for future
	evidence-based policy.
3.5	Improved evidence to support EU Exit
Private Dining	Jane Naylor & Amelia Ash (Department for Exiting the European
Room	Union)
ROOM	EU exit is the most important issue facing our country and our Government at this time and it is therefore key that Ministers, negotiators and policy makers have access to the best analytical evidence possible to inform their decision making. The Department for Exiting the EU (DExEU) is responsible for coordinating this analysis across all Government departments and it is essential that this programme of work has access to the best data sources possible, that the use of data is consistent across departments and initiatives to fill data gaps are coordinated across teams. This presentation will provide an overview of the EU Exit data strategy that has been led by statisticians in DExEU to ensure that this happens. Illustrative examples will be provided of how we have worked across departments to: - develop a data catalogue of key data sources for EU Exit analysis to ensure consistent understanding of the strengths and limitations of each source and hence their use across projects - identify data gaps around Northern Ireland trade and explore innovative options for filling these gaps - manage the risks around the impact of EU Exit on official statistics and identify alternative data sources that could be used as early indicators of trends in official statistics in the event of a no deal We will also highlight areas where further work is required to manage
	bring.
	Parallel Session 4
4.1	Beyond the silo: How cross-government collaborative working is
Melville Suite	informing the Adult Social Care policy debate
	Jason Snowden, Sarah Liley & Angus Gibson (Department of
	Health and Social Care /National Health Service Digital/ Ministry
	of Housing, Communities and Local Government)
	With over £17bn of spend and close to 2 million requests for support
	per year, Adult social care (ASC) matters. It is no surprise that
	decisions over how that money is spent attracts scrutiny and, as
	statisticians, we have to make sure these decisions are based upon a
	common understanding of the data. The Code of Practice we follow
	requires that we deliver 'Trustworthiness', 'Quality' and 'Value' in our work and some ASC finance data was falling short of these expectations. To rectify this, we formed a cross-government working group to align the national and local reporting of ASC expenditure,

	T
4.1 cont. Melville Suite	including the reconciliation of expenditure data and the treatment of the integrated health and social care 'Better Care Fund'. With representation from DHSC, MHCLG, NHS Digital and NHS England, this represents a big step forward in collaborative working in this field. With funding for social care so often in the headlines, it is important that everyone is clear about current levels of expenditure, where they are funded from and their data sources and our work has already had an impact. Reports from commentators such as the NAO and the IFS now use the same figures for ASC expenditure that our departments use. We would like to talk to you about the benefits and lessons we have learned from the experience of coordination across four large organisations, discussing how things were reported in 2015/16 and how they have improved since, including plans for this year's reports. Understanding Consumer Vulnerability in the Communications Markets Grainne Murphy & Donna Phillips (Office of Communications) Ofcom's duty is to make communications work for everyone, and to do that we must understand how vulnerable consumers are being served by the communications markets. A consumer might be vulnerable due to their age, financial status, disability or life circumstances. However, vulnerability is tough to understand and equally difficult to measure in research. Initially Ofcom's research focused on analysing survey.
	results by demographic characteristics such as age, socio-economic group and disability. Whilst this is valuable research, it is limited in terms of getting to the nuanced nature of vulnerability. For example, if those with a visual impairment are less likely to have a smartphone (53% vs 81%), is it mostly because of their disability, or is it primarily led by their age? We are improving our research and analysis techniques to pick apart these nuances. We have developed a financial vulnerability scale which factors in a respondent's working status, income and household size. We have also focused on answering key research questions related to vulnerability. For example, who is finding it hardest to afford communications services, such as broadband, telephony and post? The 16-24-year olds, not the over 74's (17% vs 2%). We are also carrying out regression analysis to understand what the driving factors are behind key issues for vulnerable consumers, and to understand the interplay between consumers' demographic characteristics. I will be talking through our previous findings in this field and presenting the new analysis methodology and how this improves our understanding of consumer vulnerability.
4.2	Why the Civil Service leads the way, but does not realise it
Glamis Suite	SAS (Gold Sponsor)
	Data Science is the engine behind many businesses today and the

	statistician is at the forefront of this. It is not a new phenomenon for
	government - as it is many businesses - a wealth of data has always
	been collected by government, but this data set consistently grows –
	so how will a 21st Century statistician role evolve to cope with the
	increasing demand and help make steps forward for the
	transformation the government desires. In this session we will cover
	- Civil service leads the way
	- The developing role of the data scientist
	The world evolving around data science
	Is Al an opportunity or throat
	- is Al an opportunity of timeat
	- Data and insight driven decisions
	- Snaping the future of policy making
	Speaker: Chris Gallagher, Public Sector Al lead, SAS UK
4.3	Using a 'life expectancy decomposition' method to understand
Edinburgh Suite	the drivers of change in life expectancy over time, and of
	inequality in life expectancy.
	Emma Parker & Leigh Dowd (Public Health England)
	Since 2011, there has been a slowdown in the rate of improvement in
	life expectancy in England. There are also wide inequalities in life
	expectancy and in 2015-17 the gap in life expectancy between the
	most and least deprived areas of England was 9.4 years for males and
	7.4 years for females. To further understand these life expectancy
	trends and inequalities, we undertook a 'life expectancy decomposition'
	analysis. This analysis quantified the contribution of different age
	bands and causes of death to changes in life expectancy over time,
	and to inequalities in life expectancy.
	Results from this analysis were published in the PHE Health Profile for
	England 2018. The results showed that reductions in mortality from
	heart disease and stroke have historically driven improvements in life
	expectancy. However, a slowdown in improvement in mortality rates
	from these causes has had a large impact on the trend in life
	expectancy, making this a key area for action. The main drivers of
	inequalities in life expectancy within England are higher mortality rates
	from heart disease. Jung cancer and chronic lower respiratory diseases
	in the most deprived areas. At local level, however, there is variation in
	the drivers of inequality in life expectancy. To provide this information
	for all local authorities we have recently updated the Segment Tool. The
	tool has been redeveloped as an R shiny app, allowing users to more
	easily interact with the data and charts and identify the key areas for
	action in their location
4.3 cont	Enabling othically appropriate uses of data for research and
Edinburgh Suito	etatistics for the public good
	Emily Mason-Anns (United Kingdom Statistics Authority)
	Depent advances in technology skills and legislation provide up with
	Recent advances in technology, skills and legislation provide US With

	a wealth of new opportunities to access and use data to produce new
	insights and statistics which have real value for the country. In
	maximising the research and statistical uses of these new
	opportunities, it is important that we do not just consider what now
	can be done with data: it is equally important that we consider what
	should be done. We will present the innovative approach that the LIK
	Statistics Authority has taken to establish a robust efficient and
	transparent ethical governance process to enable us to consider 'the
	should' This approach aims to provide the National Statistician with
	assurance that the uses of data across ONS the Government
	Statistical Service and where appropriate the wider research
	community are ethically appropriate and for the public good. We will
	focus on some of the developments that undernin this approach
	including: the establishment of an independent expert committee that
	provides transparent external advice and challenge on the use of data
	for research and statistical nurnoses: and the recently undated ethics
	self-assessment tool that enables researchers and statisticians to
	consider the ethics of their work at an early stage in the life course of
	a project encouraging a culture of 'ethics by design'
4 4	Data Quality: Do the public even care?
Private Dining	Fiona Shepherd (Home Office)
Room	Statistics often have a big impact on public debate and can form the
	basis of people's opinions. Government statistics cannot always
	provide a definitive answer, but our estimates are often accepted as
	fact.
	With so much trust placed in our statistics, it is vital that our publications
	are as accurate as possible in order for the GSS to play a central role
	in public debate. We, as statisticians, have to make the right
	iudgements about definitions. methods, and the strengths and
	limitations of the data we work with to ensure our statistics are robust
	and reliable.
	Using the first release of statistics on police use of force, I will be
	looking at the judgements we made during the statistical production
	process and the impacts these have had on the final version of the
	published statistics, and associated media coverage
4.5	Energy Use Over the Last 70 Years; What it has told us and how
Braemar Suite	methods have changed.
	Warren Evans (Department for Business, Energy and Industrial
	Strategy)
	Climate change is the greatest environmental challenge humanity has
	ever faced and has never been more in focus with the recent
	commitment to fully decarbonise the energy system by 2050, aiming to
	reach net zero emissions. But what do we know about how our energy
	system has grown and transformed in recent decades? How will we

	know whether the policies to support the government's ambitions are
	being successful?
	This summer BEIS published the 70th edition of the Digest of UK
	Energy Statistics, showing not only how energy is supplied into the LIK
	now but providing a long-term look into our past to understand what
	how but providing a long-term look into our past to understand what
	has changed over the last 70 years. The Digest offers a unique history
	of now energy has transformed in the UK and reflects the work of
	generations of statisticians developing the evidence to keep abreast
	This talk will cover how energy in the LIK has changed as we moved
	from coal, through the growth of petroleum, gas and nuclear, to recent
	surges in renewable operate it will explore the interconnectedness of
	surges in renewable energy. It will explore the interconnectedness of
	the world's energy system by noting now energy has been increasingly
	traded with other countries. We will also outline the statistical
	challenges involved in moving – for instance - from counting the
	number of pit ponies used in collieries to quantifying the amount of
	energy that has comes from the sun and the wind, and the challenges
	of maintaining the long-term evidence base in a rapidly developing
	policy environment.
5 4	Parallel Session 5
5.1	What to Expect when You're Not Expecting, the Novichok
Edinburgh Suite	Chronicles
	Victoria Cox & Philippa Spencer (Defence Science and
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	it was unheard of for women to fight or carry weapons and so when the
	archaeologists discovered the remains buried with status symbols: two
	shields, a sword, an axe, a battle knife, armour piercing arrows, a
	spear, and two horses, they naturally assumed it was male.
	Such misidentification has been rampant across history, but there are
	many modern consequences of this. One consequence is the idea that
	if it is suitable for men - particularly white men - it is suitable for
	everyone. This assumption is actually deadly to many women and
	those that do not fin the natural white male mould. This is most
	apparent when it comes to car crashes. When a woman is involved in
	a car crash, she is 47% more likely to be seriously injured due to the
	fact many car makers use only male crash dummies that don't take into
	account the average female height, weight, and differing bone density.
	From brick size and body armour, to room temperature and space suits,
	all these add up to a large gap in data and in provision when it comes
	to women and it is our job as statisticians to help close this and make
	sure we identify and root out data that is out of date and
	unrepresentative.
5.3	Finding an impactful government career using R, Power BI and
Braemar Suite	web-scraping
	Tobias Jolly (Cabinet Office)
	The High Impact Policy Engine (HIPE) is a cross-government project
	helping civil servants to maximise the impact of their careers. As part
	of the HIPE team, I developed the <u>HIPE jobs app</u> after noticing the lack
	of features on Civil Service Jobs that would allow civil servants to find
	jobs working on issues that they care about. The focus in developing
	the app was therefore to provide a way for civil servants to make more
	informed career decisions, and plan career moves which allow them to
	have more impact. The data source I identified to do this was the Civil
	Service Jobs website. This is a standard website made up of connected
	pages showing jobs data in semi-structured html.
	For the past year I have been using R to web-scrape job information
	(grade location, role type etc.) and full job descriptions from Civil
	Service Jobs, and search these jobs for keywords relevant to different
	areas of impact (climate change, poverty etc.). There are now over
	100,000 adverts in my Power BI data model.
	I developed a front end in Power BI which is viewable at the above link.
	The app allows users to interrogate current and historical job adverts
	to make evidence based and higher impact career decisions. >13,000
	searches have been made with the tool so far. This talk will discuss the
	challenges of finding impactful roles in government, the process of
	developing this tool, as well as the technical aspects of web-scraping
	and building a Power BI model.

Melville Suite Melville Suite
Bowie Penney, Elizabeth Frazer & Samantha Collins (Ministry of Housing, Communities and Local Government /Scottish Government/Welsh Government) The indices of multiple deprivation have a long-standing reputation as a rich, robust and detailed resource drawn predominantly from administrative data sources across Government. The English, Welsh and Scottish indices are used by respective Governments and stakeholders as the standard measure of deprivation at small area level in the UK, covering income, employment, health, education, access to services, crime and the living and physical environment. As a resource, the indices constitute a key component of the evidence base across a wide array of analytical work – from community integration projects and models for public service funding allocation to policies for improving local areas, highlighting inequalities, such as in life expectancy, and identifying how these might be addressed. At a local level, the indices
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also provide a clear and accessible tool to assess relative deprivation
at a variety of geographic scales, enabling local stakeholders to identify
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community priorities for improvement and work with communities to
generate local solutions.
In this session, colleagues from England, wales and Scotland will give
an overview of the indices of deprivation across the UK, the analytical
framework and methodology which sit behind them, how they can and
should not be used, an in-depth look into what the data show, and the
tools developed to help users make best use of the available evidence
to inform decision making. Speakers will also present the key features
of hot-off-the-press or soon to be released updated indices, with all
currently set to publish in 2019, and facilitate discussion on recent
developments.
5.5 Using Machine Learning to analyse text data in Defence
Glamis Suite Alexandra Pop (Ministry of Defence)
Artificial intelligence is no longer an abstract field, but one that can
enable businesses to work smarter and faster, doing more with
significantly less. This presentation will demonstrate the application of
machine learning techniques on text data collected by the Military
Aviation Authority (MAA). The ability to draw meaningful insights from
this data is essential to inform decision makers of potential risks in
Defence, bring more evidence about readily identified risks, and do so
in a smarter, and efficient manner. The MAA uses the Air Safety
Information Management System (ASIMS) a web-based application
that supports the reporting management and analysis of air safety
accurrences investigations and recommendations. With an average of
1 000 reports submitted a month and most of the data collected in free

text format, drawing meaningful statistical insights using ASIMS has
been limited over the years.
This changed in 2018 when we began working with an outside
company to create a software which has the capability of ingesting the
text data and provide data analytics outputs. This capability can help
the MAA mitigate risk more effectively. The methods I will cover mainly
align to Natural Language Processing and include: text clustering,
anomaly detection, text classification, and sentiment analysis.

With many thanks to all our speakers at GSS Conference 2019.

Conference blog

the conference too!

You can find our official blog for the GSS Conference at <u>https://gss.civilservice.gov.uk/events/government-statistical-service-gss-conference-2019/</u> We have been posting in the run up to the conference, and will be posting during and after

Conference twitter feed

For tweets about the conference, see the official GSS Twitter account (@UKGSS). If you send any tweets about the conference, please use the hashtag #GSSConf2019.

Slack

The <u>GSS Slack network</u> has a dedicated <u>#GSSConference2019</u> channel so you can begin to network with colleagues across departments before the day. The conference team will also be using Slack to post communications throughout the 2 days of the conference to ensure that everything runs as smoothly as possible.

To join the conversation:

- Go to the GSS Slack log in page.
- Register for an account using your Government email address.
- Once logged in open the list of "Channels" (using the "+" icon) on the left hand side.
- Choose #gssconference2019 and you're in!

We appreciate some departments' IT restrictions will mean being unable to join from a work PC, but hopefully you can still get involved using a mobile device.

Conference Committee members

Co-Chairs

Francesca Parrott, Department for Environment, Food and Rural Affairs Michael Cole, National Health Service, Business Services Authority

Venue team

Jess Maddison, Department for Work and Pensions Kate Shires, Department for Education Jade Carruthers, National Health Service Scotland

Comms team

Fiona Walker, Department for Education Isobel Bochel, Department for Education

Delegates team

Daniel Ayoubkhani, Office for National Statistics Rebecca Jones, Office for National Statistics

Parallels team

Anna Blaylock, Ministry of Justice Toni Stansfield, Ministry of Defence Yetunde Fakayode, Department for Education

Keynotes team

Connie Taylor, Office for National Statistics Luke Pagliaro, Her Majesty's Revenue and Customs

Sponsorship team

Amila Said, Her Majesty's Revenue and Customs Pooja Ramnarain, Ministry of Defence

With thanks to Alison Eve and Michael Wilmott at ONS for their contribution to this year's conference.

Each GSS conference is organised by a cross-government group of volunteers. Organising the conference is a great way to meet other statisticians and to make a positive contribution to the GSS community. If you want to help organise next year's conference, calls for volunteers will be going out in December, so keep checking the GSS website!

Notes









Our statistics, today's issues