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***Data Science: Training and Capacity Building***

**Data Visualisation**

The Industrial Strategy recognises that a major challenge facing UK businesses and industry is how best to utilise big data to improve economic performance and increase productivity. A substantial barrier to exploiting the potential offered by emerging forms of big data is the lack of a suitably trained workforce with appropriate analytical skills. Many statistical techniques used in the social sciences are also suitable for the analysis of big data in non-academic settings, however social science graduates often lack experience in applying their skills and knowledge in non-academic research domains.

Visualising data is emerging as a key component in effectively communicating research results and evidence. This three-day workshop will provide a comprehensive introduction for individuals wishing to learn how to design, produce and interpret data visualisations.

The workshop will provide participants with a practical introduction to the fundamental concepts that characterise data visualisation and which are critical for successfully communicating research results.

The workshop will comprise both lectures and practical hands-on exercises in the programming language R. The final day of the workshop will be a group exercise in the form of a ‘hackathon’, where participants will be tasked with addressing an industry challenge using the techniques learned during the first two days.

As a result of attending this workshop, participants will be equipped with a range of skills that are highly desirable in industry, including the use of the R programming language, working with real-world (i.e. messy) data, and effectively communicating research results and evidence.

Topics covered will include:

* Guiding principles for constructing effective data visualisations
* Getting data in shape for visualising
* How to graph quantitative data using the ggplot2 package in R
* Graphing a range of variables and data types (e.g. numeric and categorical values, associations)
* Graphing the results of statistical models
* Refining graphical presentations
* Practical hands-on sessions introducing the methods and techniques outlined above.

The workshop is free to attend, and refreshments and lunch will be provided on each day.

The workshop is suitable for postgraduate social science students and early-career researchers with a good general knowledge of statistical methods and data analysis. Some experience of analysing large-scale and complex social surveys (e.g. the birth cohort studies or household panel surveys) or administrative datasets would be an advantage.

The workshop is also suitable for academic staff engaged in teaching data analysis and statistical methods in social science settings who are seeking to incorporate data science and big data analysis skills into their programmes.