



Risk, evidence and decision making

Risk and uncertainty are an inevitable part of our lives, encompassing issues as diverse as melting glaciers and everyday decisions about food, purchases, and budgets. Every society, past and present, has developed its own techniques for understanding, weighing, and managing these risks and uncertainties, ranging from scientific and technological methods to social and cultural practices.

York's research under the theme of Risk, Evidence, and Decision-Making brings together a wide variety of disciplines, methods, and frameworks to study some of the most pressing issues of the day in all their dimensions—historical, economic, societal, environmental, technological and geopolitical. Our research takes a holistic approach to modelling risk; understanding the cultural and social contexts in which risk and evidence are assessed, weighed, monitored, and controlled; and studying the individual and institutional processes through which decisions are made.

Our research excellence

- York's environmental research provides evidence and models that underpin policy decisions on global risks, including climate change, pollution, and species conservation.
- York Management School's research on risk, innovation and the economy explores the evolution of technologies and processes, to understand the socio-economic challenges and risks innovation entails.
- The Centre for Reviews and Dissemination carries out, and develops methods for, systematic reviews and evaluations to facilitate using research evidence in decision-making.
- York's research on geopolitical risks studies political dissatisfaction and the dynamics of intra-state conflicts, and devises strategies for conflict resolution.
- York's research on the safety of complex computer-controlled systems has pioneered approaches to assessing software safety and providing safety assurance in aerospace, air traffic management, defence and space.
- The Science and Technology Studies Unit studies the context, history, and future of scientific innovation, to develop ideas and insights into the changes shaping the world today.
- York's research on economically evaluating health technologies underpins many methods used by National Institute for Health and Care Excellence (NICE) and similar organisations internationally.



Case study

Tackling TB and tobacco

TB and Tobacco is a four-year project, funded by the European Union's Horizon 2020 research and innovation programme. Led by Dr Kamran Siddiqi, the project is coordinated by the Department of Health Sciences at the University of York and involves eight other partners. The aim of the project is to investigate ways in which interventions designed to encourage people to stop smoking can be integrated into tuberculosis (TB) control programmes. This builds on our previous work which showed that such interventions can be highly successful in helping people to quit smoking. Our ultimate goal is to improve the health and longevity of patients suffering from TB, and to reduce the number of people who suffer from tobacco-related diseases. We are conducting our research in partnership with three TB high-burden countries in South Asia: Bangladesh, Nepal and Pakistan.

Siddiqi, K., et al. (2013). Action to Stop Smoking In Suspected Tuberculosis (ASSIST) in Pakistan: a randomized, controlled trial. *Annals of Internal Medicine*, 158(9), 667-675

Case study

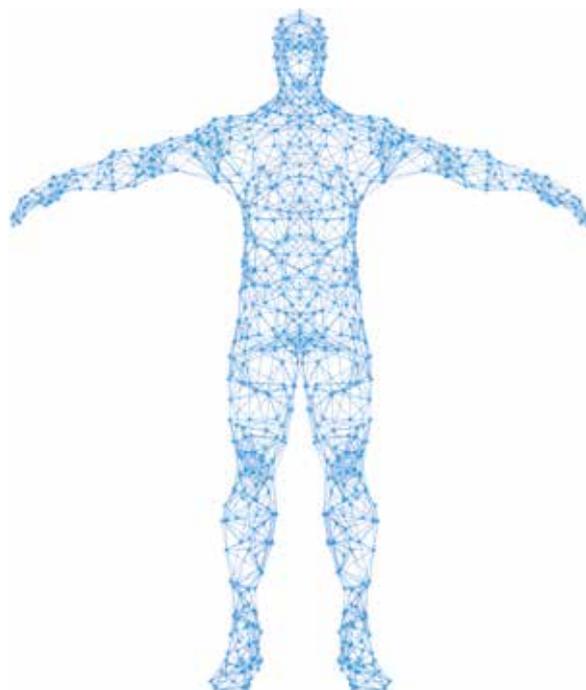
'Smart' security

Security decisions are always uncertain. Should this passenger be allowed to board the plane? Is this person an innocent citizen or a terrorist?

Technological advances, such as the algorithmic analysis of big data, offer new ways of acting in the face of uncertainty.

Dr Alex Hall of the Department of Politics, University of York, has carried out research which focuses on the international securitisation of mobility and contemporary border politics in the West, drawing on interdisciplinary work from international relations, anthropology and critical security and border studies. She has conducted research into the everyday production and experience of security within immigration detention, and the rise of 'smart' e-border targeting systems in the UK and Europe.

Hall, A.E.J. and Mendel, J. (2012). Threatprints, threads and triggers: risk imaginaries in the war on terror. *Journal of Cultural Economy*, 5(1), 9-27



Partnerships and impact

Our excellent research underpins international networks and partnerships, ensuring maximum impact for our risk assessment expertise.

- York academics have spun out a software solutions company, SimOmics, which provides transparent, evidence-based decision support tools for the pharmaceutical and environmental risk assessment sectors and companies such as AstraZeneca and Syngenta.
- The Centre for Applied Human Rights is studying the risks faced by human rights defenders in Colombia, Mexico, Kenya, Egypt and Indonesia.
- The University of York, in collaboration with NASA Ames researchers and automotive partners, is developing means for reasoning dynamically about safety risks under high degrees of uncertainty, with emphasis on unmanned aircraft systems and autonomous driving.
- The University of York was the lead partner for the Natural Environment section of the UK Climate Change Risk Assessment 2017 Evidence Report which recommends the priorities for government action on climate change risks over the next five years.
- York, in partnership with NHS Digital, is leading the development of a tool-supported assurance methodology for justifying the safety of digital health technologies deployed within the NHS, for example ePrescribing and self-management apps.



The Centre [Centre for Health Economics] has made extraordinary contributions both nationally and internationally to the development of health economics. It has done so from both a theoretical and practical standpoint. In particular, its contributions to the work of NICE have been so very important that I doubt if we would have achieved anything without the rigour and expertise provided by the Centre and many of its staff."

Professor Sir Michael Rawlins, Chair of the National Institute for Health and Care Excellence (NICE) until 2012

For more information on the University of York's interdisciplinary research themes see www.york.ac.uk/research

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