

A complex, light blue abstract pattern of lines, circles, and squares resembling a circuit board or network diagram, covering the entire background.

Research @ Oxford Internet Institute

www.oii.ox.ac.uk



Oxford Internet Institute

Oxford Internet Institute

Every day, more of the world's cultural, economic and political activity takes place online. The Oxford Internet Institute's (OII) mission is to understand this transformation. Our research draws on many different disciplines, essential to tackling the major challenges of the 21st century. From digital politics to the ethics of artificial intelligence, we aim to address the societal implications of life online to inform public policy, advise industry and enhance daily life for people around the world.

The Oxford Internet Institute is at the centre of a global community of researchers because for over a decade we have been offering innovative courses for students, providing training for policy makers, and advancing understanding of the challenges and opportunities for technology diffusion.

Information technologies have certainly transformed our lives and our toolkit for researching public problems. Much of the innovation in the social and computer sciences is not led by particular disciplines but by people who can cross disciplinary boundaries. We have alumni doing vital, ethical research work in government, industry, civil society, and the world's leading universities.

We cultivate students who can think across the disciplines and set ambitious career goals. Our degree programs are designed to facilitate such thinking and ambitions, and we are able to offer these through the support, financial and inspirational, of our alumni and research funders.

Sometimes technologies seem to cause as many problems as they solve. My own research mission is to increase civic engagement and solve social problems through data science. But each one of our faculty, staff and students expresses their own research vision. So use this brochure as a way of exploring the diversity of topics and research methods we have for answering deep questions about how to use information technologies to improve our cultural, economic, and political lives.

Sincerely,



Phil Howard
Director



Phil Howard, OII Director

Digital politics and government

The Internet has transformed political behaviour, from voting and campaigning, to protest and even revolution. To understand this radically transformed political world, we are re-examining the models and conceptual frameworks of political science, and developing social data science methods to understand political behaviour.

Research in brief

- How social media and online networks shape collective action, from protest to revolution
- The prevalence of junk news online, and its impact on public opinion and election results
- The relationship between misinformation campaigns, news coverage and social media for public understanding of science and innovation
- How the Internet can improve relationships between citizens and states
- How violent extremist groups use the Internet and social media
- The politics and governance behind the management of the Internet's infrastructure
- How the media and social media influence agenda setting in the European Union
- How digital technologies and data science can help government to innovate and solve policy problems

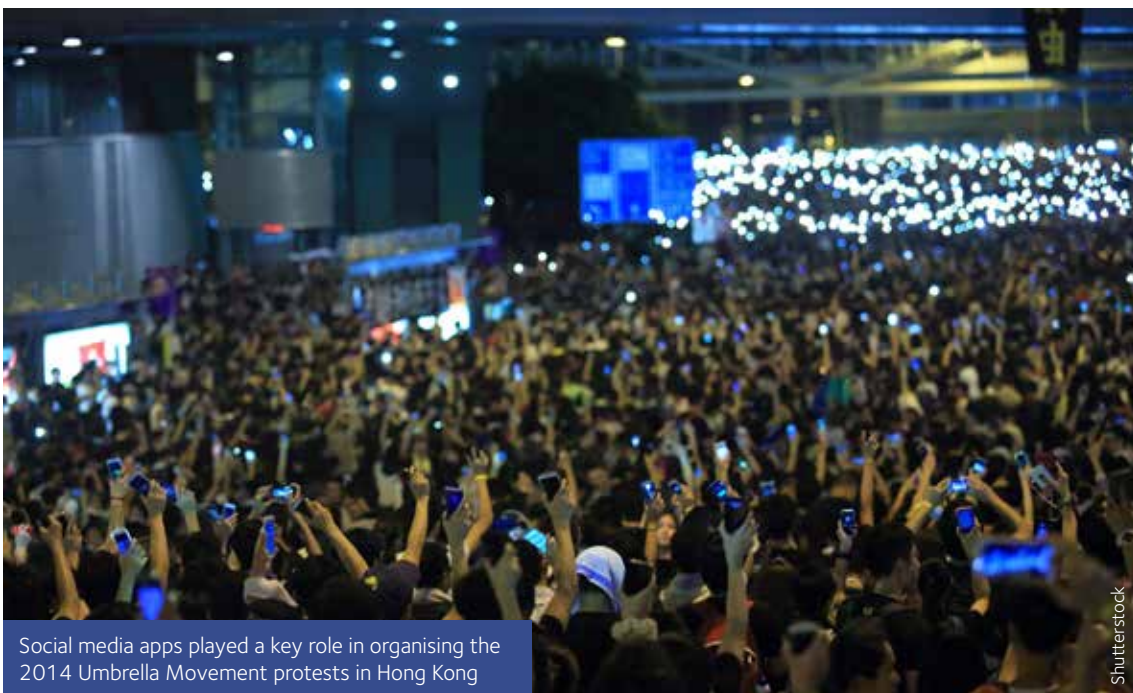
Stopping computational propaganda

Political bots are manipulating public opinion over major social networking applications by influencing conversations, demobilizing opposition, and generating false support. By studying these political bots, we aim to understand the depth of the problem, how they affect election outcomes, and ultimately to improve the way we catch and stop bots.

Understanding political turbulence

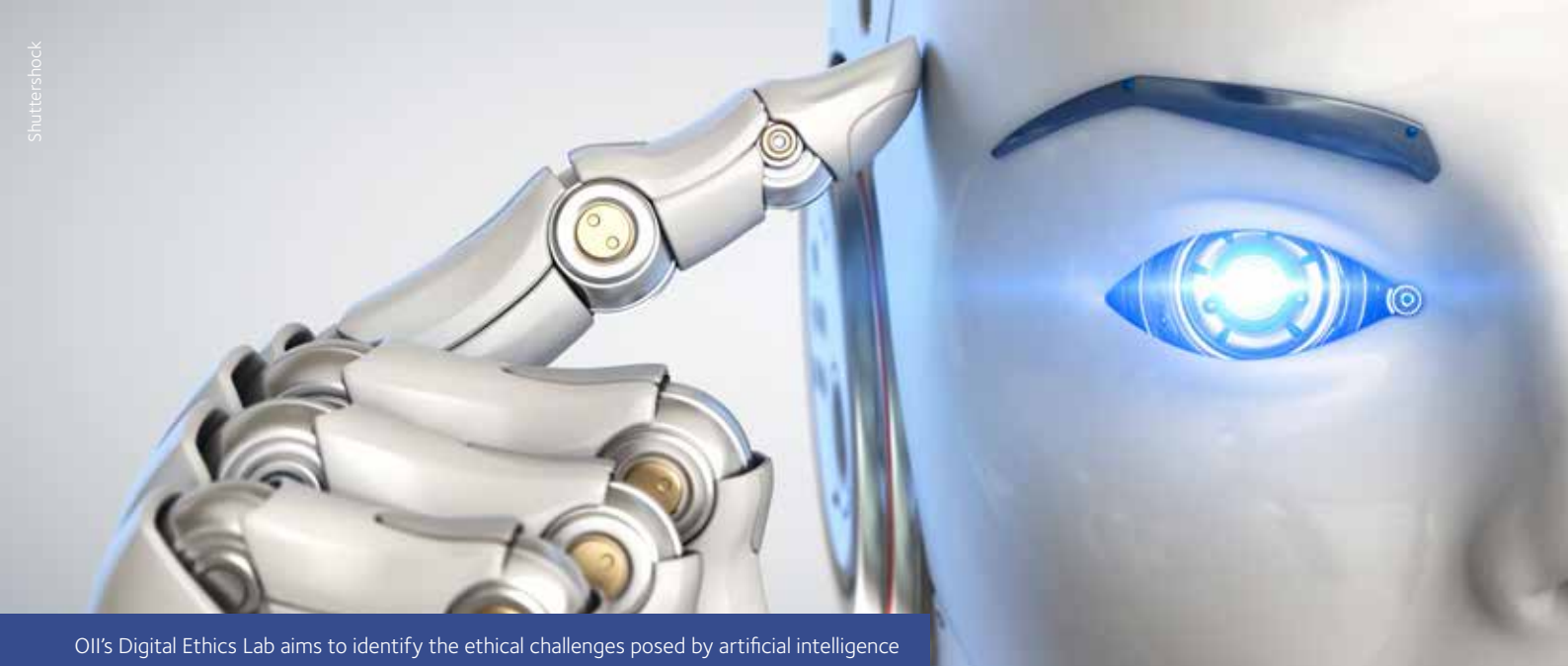
It seems that political life has become ever more fast-moving and unstable, leading to electoral shocks, policy challenges and even regime change. We aim to understand the drivers of this new volatility, developing models to explain and predict political developments, and inform the design of digital platforms and institutions to bring greater stability to the policy-making landscape.

www.oii.ox.ac.uk/research/politics



Social media apps played a key role in organising the 2014 Umbrella Movement protests in Hong Kong

Shutterstock



OII's Digital Ethics Lab aims to identify the ethical challenges posed by artificial intelligence

Ethics and philosophy of information

If we are to create good law and public policy in the Internet age, we must have a deep understanding of the power of information, and how communication technologies are shaping our experience of the modern world. We are identifying and analysing the pressing ethical and philosophical issues affecting society and developing approaches to resolve them.

Research in brief

- The Internet of Things, and its impact on privacy, security and welfare
- The creation of an ethical framework for the sharing of medical data within Europe
- Bias and discrimination behind algorithms, and how ethical auditing can be used to inform automated decision-making
- How data sharing can lead to better outcomes for Alzheimer's patients and their carers
- The ethics and policies behind cyber conflict and cyber warfare
- The ethical implications of the commercialization of data left on the Internet by deceased users
- The ethical and societal implications of Artificial Intelligence

Digital Ethics Lab

The OII's Digital Ethics Lab brings together a multidisciplinary group of experts in philosophy, law, computer science, anthropology, sociology and many more disciplines to tackle the ethical

challenges posed by digital innovation. In order to harness technology to help solve social and environmental problems, the Lab has developed a programme of innovative, foundational studies to identify ethical opportunities, challenges and risks. As thought leaders in the field, we are in high demand to provide independent research, advice and solutions with impact on industry and policy.

Examining the ethical implications of Artificial Intelligence

AI is out-performing humans to an increasing extent in work-related and social tasks. From smart home appliances to robots in the manufacturing industry, widespread uptake of AI comes with ethical challenges, including employment disruption, the spread of misinformation online, unfair and biased algorithm decision-making, and unpredictable financial markets. We are developing innovative solutions to foster value-based and ethically sound technical solutions to the challenges posed by AI.

www.oii.ox.ac.uk/research/ethics

Digital economies

Many markets have been transformed by fundamental shifts in their technological underpinnings, giving rise to powerful intermediaries and platforms, and to changes in the way we work and earn. We are working to answer questions such as: how should we govern and regulate new economic environments and processes? How should marketplaces be designed to function effectively?

Research in brief

- The effect of online work platforms in the labour market, and how they impact employers and workers
- Competition policy and regulation for online markets
- The effects of technology on competitive strategy
- What organizational and structural changes will be needed for the successful application of Distributed Ledger Technologies in the financial services and arts sector
- The impact of digital technologies on traditional industries
- How online platform workers acquire and develop new skills
- The economics of online media, advertising and consumer search
- Developing new online work platforms that are certified as 'fair work'

Labour markets in the platform economy

Fundamental change is taking place in labour markets, with a shift from formal processes of legislation and collective bargaining, to an online labour market shaped and constrained by private software systems that mediate between workers and employers. We are examining the roles of online work platforms to address questions about the new "platform economy", from the kinds of rules and processes that govern its daily life, to what kind of an economy online labour markets contribute to – is it a global race to the bottom, a playful economy of moonlighters, or a network of individual entrepreneurs?

Bias in online price comparison tools

Consumers often consult price comparison websites when shopping online, expecting unbiased recommendations – however, recommendations are often based on financial incentives, such as commissions or exclusive contracts. This introduces bias into the market, and could distort competition between companies. We are developing a new analysis of bias and studying the efficacy of a broad range of policy interventions.



www.oii.ox.ac.uk/research/economics





Viktor Mayer-Schönberger, Professor of Internet Governance and Regulation, speaking to an audience at the launch of his latest book

Information governance and security

The big data generated by digital interactions between people, organisations and artefacts poses numerous challenges to information governance and regulation, including of the Internet itself. We are exploring and analysing new governance, rules and processes to address the competing demands of information security, privacy and individual freedom.

Research in brief

- How data protection regulations can help and hinder big data approaches
- Intellectual property and the challenge of managing information rights online
- The application of cyber surveillance systems, and its risks and rewards
- The implications of Internet filtering and censorship practices around the world
- The development of privacy and security frameworks for improved home networks and devices
- The operation and efficacy of online age verification tools
- Tensions between democracy, Internet regulation and human rights

www.oii.ox.ac.uk/research/security

Improving cybersecurity

A recent wave of cyberattacks has made it clear that cybercrime is a growing global concern. Despite businesses and nations using state-of-the-art technical security systems, the ultimate security depends on appropriate end user behaviour. We are investigating the determinants of individual cybersecurity behaviours to better understand human behaviours to reduce cybersecurity risks.

Ending the illegal wildlife trade

Illegal and unsustainable wildlife trade is a major and growing threat to global biodiversity. The rise of the Internet as a trade channel for illegal goods, including wildlife, changes the way trade is conducted. In partnership with the Oxford Martin School and Department of Zoology, we are using new approaches for monitoring online sales of prohibited goods, promoting behavioural change, and evaluating the impact of conservation interventions with the ultimate goal of finding effective ways of ending the illegal wildlife trade.



We are working to end the illegal wildlife trade
by finding ways to monitor and track sales online

Education, wellbeing and digital life

The Internet plays an important role in our daily lives, and we are working to address the psychological, social and educational implications of the Internet across the human lifespan, particularly in childhood and youth. Using diverse approaches, we are unpacking the complex interactions between digital technology, education, home life, employment, health, and relationships.

Research in brief

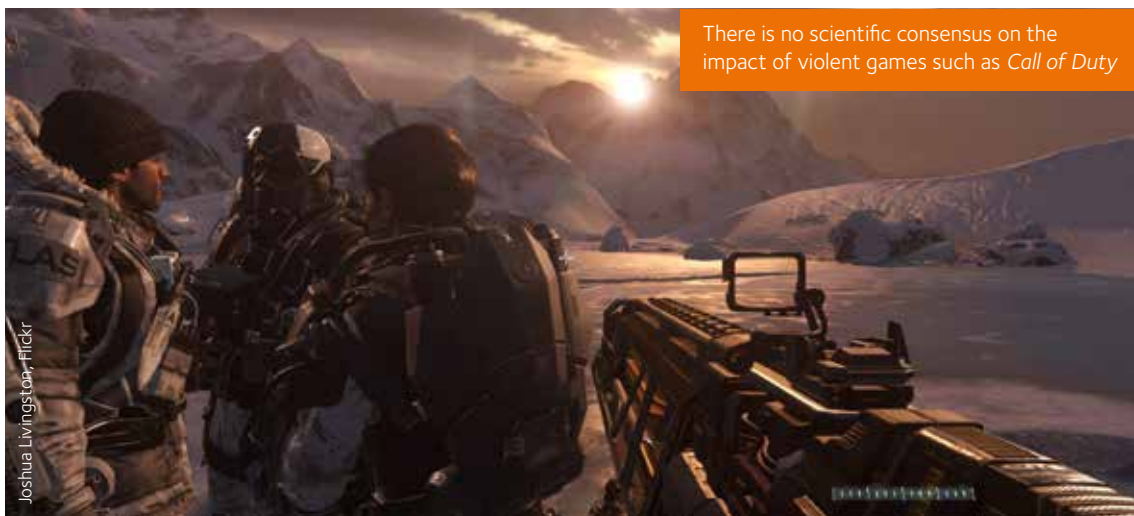
- Evidence-based investigations into the existence of technology addiction
- The potential of AI to personalise learning across the lifespan
- The effects of violent video games on young people
- The protection of children, and their data, from adverse online experiences
- Big data approaches for better medical outcomes
- How young people use technology to learn outside of formal education settings
- Use of self-tracking technology in healthcare and other sectors
- Computer-mediated communications in relationships

Improving child safety on the Internet

Children are spending more time than ever online. The nature of their Internet use have also shifted, with offerings for children ranging from toddler-sized cameras with apps to traditional toys that include digital online components. We are exploring the implications of children's broadening digital footprint, seeking to map the range of corporate actors now engaging with children or their data online. We aim to identify areas where their actions might increase or reduce a child's exposure to online risks such as data theft, aversive online experiences or, most worryingly, sexual exploitation.

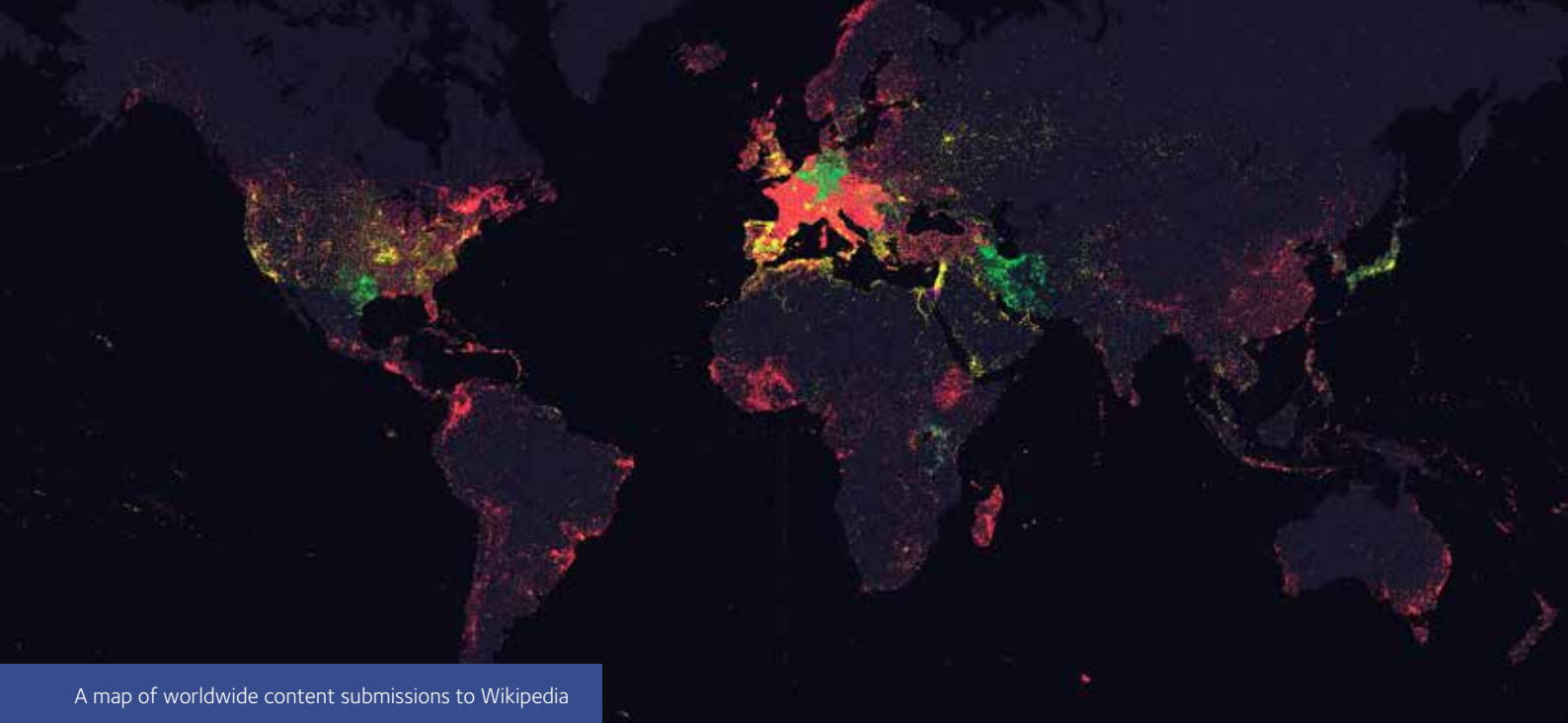
Investigating violent video games

Video games have grown in popularity from a niche pursuit to a dominant form of entertainment among the young and old alike. While society may worry about the increasing popularity of video games, there is not yet a scientific consensus on the effects of violent games. We are answering the fundamental question: do violent video games drive aggressive thoughts, feelings or behaviours?



There is no scientific consensus on the impact of violent games such as *Call of Duty*

www.oii.ox.ac.uk/research/education



A map of worldwide content submissions to Wikipedia

Information geography and inequality

Questions of inequality are as important as ever in the information age. While there are hopes that the Internet will overcome distance and provide everyone with access to global markets, inequalities still complicate the picture, from technical capability and connectivity, to wages and workers’ rights. We are critically questioning the Internet’s role in global development, and how it plays into or challenges old models of dependence, underdevelopment and economic opportunity.

Research in brief

- Understanding access to technology and information around the world
- Knowledge economies in the Global South, including Sub-Saharan Africa and India
- Digital entrepreneurship and innovation hubs in Africa
- Regional patterns of content creation online, such as for Wikipedia
- Mapping the global trade of illicit goods and services on the dark web
- The Internet’s impact on economic opportunities in rural areas

Technology and society in Sub-Saharan Africa

In the last few years, there have been radical changes to the international connectivity and technical infrastructure in Sub-Saharan Africa. While this has been characterized as

transformative for the African economy, it is unclear what impacts are observable, who benefits, and how these changes match up to our expectations for change. We are researching Sub-Saharan Africa’s emerging information economies in order to provide a robust evidence base for sharing future rounds of technology-related development projects in low-income countries.

Mapping the darknet

Between 2011 and 2013, hundreds of millions of dollars have flowed through darknet marketplaces, typically via the sales of illicit products including drugs and weapons. However, relatively little is known about the geography of this global trade. Using scraped data on sales of goods from the darknet, we are mapping the world darknet trade and tracing the global distribution of illegal products.

www.oii.ox.ac.uk/research/geography



Credit: Arthur Bullard

The Cabinet project shares their work at a Live Friday exhibition at the Ashmolean Museum

Digital knowledge and culture

Visits to libraries, museums and other public institutions can begin long before we step through the door. Access to rich contextual resources can enhance our engagement with the arts, sciences and heritage environments. We aim to understand the digital transformation of knowledge and culture, and its impact on scholarly work and public engagement.

Research in brief

- How cultures of offensive speech are created online
- The ways impact can be measured in the culture and heritage sector
- The use and spread of sexist semantics online
- Crowd-sourced creation and learning
- The transition from analogue to digital technologies in research and knowledge creation
- The use of digital technology to create engagement with museums
- Enhancing the sustainable expansion of science shops in Europe

Teaching through digital objects

The University of Oxford possesses extraordinary library and museum collections that document the history of the world. The Cabinet project aims to make these resources more accessible for teaching and research through digitisation (both 2D and 3D) and bringing these resources into a single

interactive interface. We are working to embed images and objects from collections in Oxford and elsewhere more seamlessly into teaching and learning, from classroom to lecture hall, enriching the sources available to students, teachers and the general public.

Examining cultures of hate and prejudice online

Many forums on the Internet provide space that lacks clear community standards, opening up opportunities for cultures of offensive speech to grow. We are examining how offensive material is created and proliferated in these environments, the actors who produce and disseminate it, and the ways in which it is challenged. Our aim is to expand understanding of how offensive speech operates online, contributing to debates on the potential value and costs of counter-speech and moderation, as well as raising challenging questions about the appropriate balance between humour, civility, and censorship.

www.oii.ox.ac.uk/research/knowledge

Social data science

Our daily lives generate unprecedented quantities of digital data, providing the opportunity to study complex social systems through observations of patterns in big data: data on a scale that would have been unimaginable just a few decades ago. Combining mathematical concepts with social science approaches, we are pushing forward the boundaries of data science to understand how individuals behave and interact in society.

Research in brief

- Developing a new methodological toolkit for social science
- Conceptualizing social class using data science techniques
- Using data to help local government allocate resources more efficiently
- Developing data mining techniques for social science and digital labour networks
- Using data science to forecast and understand transport networks
- Visualizing complex data sets
- Examining networks of climate change denial

Data science for smart cities

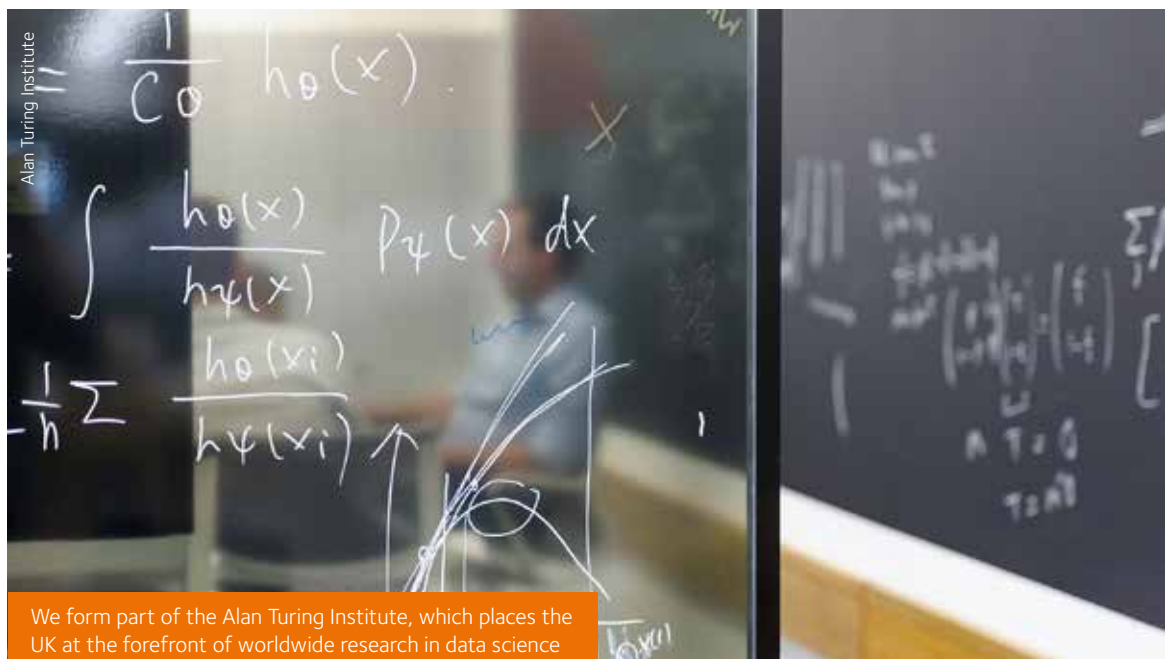
Cities are beginning to use data science methods to become more responsive and efficient in allocating resources: Cardiff uses Vodafone telephone data to help manage traffic congestion, and London's Oyster card data is used to optimise its underground system. However, we know

little about why some cities choose to use these methods while others don't, or how they overcome barriers to implementation. We are filling these knowledge gaps by investigating the use and impacts of data science systems in local governments.

The Alan Turing Institute

We are a leading partner in The Turing, which brings together data scientists from the UK's top universities, and partners from industry and government. As the national institute for data science and artificial intelligence, The Turing's mission is to push the boundaries of these new methods and technologies for public good. At OII we are proud that our multi-disciplinary mix, social science expertise and policy focus have led to 'understanding human behaviour', 'data science for public policy' and data ethics being key themes of the Turing's research.

www.oii.ox.ac.uk/research/datascience



We form part of the Alan Turing Institute, which places the UK at the forefront of worldwide research in data science

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palgrave
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The Tools of Government
in the Digital Age

Christopher C. Hood
and Helen Z. Margetts



BIG DATA

VIKTOR MAYER-SCHÖNBERGER
KENNETH CUKIER



KNOWLEDGE MACHINES

MEYER AND SCHROEDER



VIRTUAL ECONOMIES

LEHDONVIRTA AND CASTRONOVA



MARGETTS, JOHN,
HALE & YASSERI

POLITICAL TURBULENCE



REINVENTING CAPITALISM IN THE AGE OF BIG DATA

Viktor Mayer-Schönberger and Thomas Ramge



GRAHAM
& DUTTON

SOCIETY & THE INTERNET

OXFORD

The Routledge Handbook of Philosophy of Information
Edited by Luciano Floridi



Dutton

The Oxford Handbook of
INTERNET STUDIES



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Study @ OII

Our graduate students come from all over the world to study issues related to the Internet, attracted by the OII's standing as a world-leading institution and by the strength of our faculty's research accomplishments. We are educating the next generation of scholars, policy makers, analysts and entrepreneurs with the knowledge, skills and insight to generate and test new ideas, conduct original research, and influence the evolving relationships between information, technology and people.

Our multi-disciplinary faculty work on the cutting edge of Internet research, incorporating their work into a broad range of courses that

help students develop the knowledge and understanding they need to pursue careers in academia, the technology industry, consulting, government, NGOs, or the media. Opportunities for students to get involved in research, particularly at the DPhil level, are available.

Alumni from the OII have gone on to make an impact in a variety of fields, from working with automated cars to influencing Internet policy at the World Economic Forum.

www.oii.ox.ac.uk/study



Clockwise from top left: Participants attending a session at the annual student-run Connected Life conference. Professor Helen Margetts delivering a seminar to OII students. OII students celebrating the submission of their final theses projects. *Opposite page:* Faculty at the OII have authored a number of formative books in the field of Internet and digital life research



Juliana Rotich, 2016 winner



Laura Bates, 2014 winner



Lawrence Lessig, 2016 Lifetime Achievement Award winner



Mike Bracken, 2016 winner



Alec Ross, 2013 winner



Barry Wellman, 2014 Lifetime Achievement Award winner



Jennifer Pahlka, 2012 winner



David Clark, 2011 Lifetime Achievement Award winner



Dame Stephanie Shirley, 2014 Lifetime Achievement Award winner



John Seely Brown, 2013 Lifetime Achievement Award winner



Joi Ito, 2011 Lifetime Achievement Award winner



Max Schrems, 2013 winner



Chris Lintott, 2013 winner



Pete Lomas, 2013 winner



Shami Chakrabarti, 2016 winner



Manuel Castells, 2011 Lifetime Achievement Award winner



Sir Tim Berners-Lee, 2014 Lifetime Achievement Award winner



Vinton Cerf, 2011 Lifetime Achievement Award winner



Dame Wendy Hall, 2011 Lifetime Achievement Award winner



Yochai Benkler, 2012 Lifetime Achievement Award winner

Internet and Society Awards

The OII's Internet and Society Awards aim to give something back to those extraordinary individuals and organisations who have shaped the digital space we study every day. Held every other year, the awards are given in recognition of those who

have not only made significant contributions to the digital field, but also embody OII's values. Visit www.oii.ox.ac.uk/awards for information on our upcoming Internet and Society Awards.



Above: Dr Andrew Graham, founding chairman of the OII. Top left: OII faculty enjoying the Internet and Society Awards. Bottom left: Attending the awards is a highlight of the OII student experience



From left: Dame Stephanie Shirley, founding donor of the OII, celebrating her Lifetime Achievement Award win. Former OII directors Helen Margetts (2011–2018) and William Dutton (2002–2011) pose together at the awards. Opposite: Our award winners, 2011–2016.

Support our work

Our achievements would be impossible without the generosity of institutional and individual supporters, as well as support from research councils and private sector organisations. In order to extend our work globally to meet the challenges of the digital future, we must ensure that the quality and impact of our research remains outstanding, and that we are able to attract top talent. To meet these aims, we continue to need new friends and partners to provide philanthropic support.

Our graduate programmes are designed to train future leaders in academia, business and policy-making. Support for scholarships enables us to offer places to the brightest

candidates, regardless of background, and gives young scholars the means to fulfil their academic potential.

Support for our research and related infrastructure allows us to continue our ambitious portfolio of projects, advancing both the scientific and humanistic understanding of the impact of the Internet, data, and information technologies on society.

We are proud of the strong relationships we've built with our existing funders and are delighted to acknowledge their support. We are excited to discuss opportunities with any new parties interested in supporting our work.



Clockwise from top left: Professor Gina Neff contributing to a working group at the Digital Health Forum 2017. Professor Luciano Floridi delivering a speech on digital ethics at the European Commission. Dr Scott Hale, Professor Helen Margetts and Dr Taha Yasseri accepting a Political Studies Association award for their book, Political Turbulence. Professor Mark Graham speaking at the 12th World Telecommunications Indicators Conference

Supporters of our work include:



European
Research
Council



Oxford Internet Institute

The Oxford Internet Institute, University of Oxford is a multidisciplinary research and teaching department dedicated to the social science of the Internet. Research into individual and collective behaviour online is crucial to understanding our social, economic and political world.

Together, we aim to positively shape the development of our digital world for the public good.

Taught Programmes

- MSc in Social Science of the Internet
- MSc in Social Data Science

Research Programmes

- DPhil in Information, Communication and the Social Sciences
- DPhil in Social Data Science
- Recognised Student Programme
- Summer Doctoral Student Programme

Executive Education

- Internet Leadership Academy
- Industry visitor Programme

Research

- Digital Economies
- Digital Knowledge and Culture
- Digital Politics and Government
- Education, Digital Life and Wellbeing
- Ethics and Philosophy of Information
- Information Geography and Inequality
- Information Governance and Security
- Social Data Science

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