Keeping pace with change
One certainty of life is change and 2017 had more than its fill. Change may be sudden and dramatic or slow and gradual. It might affect whole societies and communities or just a few individuals. But what is certain is that the future impacts and implications of changes seen in 2017 – whether social and political upheavals or new policies, technologies and innovations – will impact society for years to come.

Objective policy research and analysis plays an important role in helping society keep pace with change. Anticipating, interrogating and understanding its effects can also help improve policy and decision making to shape our future for the better. At RAND Europe, we recognise the power of change and deliver robust, relevant insights to harness it for the public good.

This edition of Spotlight features a selection of our work carried out in 2017 to help meet new and evolving challenges. We have completed several studies that examine the implications of Brexit for the UK, the EU, and beyond. We have examined the potential of increasingly advanced technology, including in the areas of cybersecurity and digital transactions. And we have evaluated and recommended improvements to be made along the path to better systems in health, policing and education.

As the certain but ever-flowing pace of change continues, RAND Europe remains dedicated to delivering objective research and analysis to help policy and decision makers create a future in which all can thrive and prosper. I hope you enjoy reading about the ways we achieved this goal in 2017.

Hans Pung, President
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Open science aims to create greater transparency in research by removing barriers to sharing outputs, resources, methods and tools. The aim is that anyone, from researchers to the general public, can access and exchange scientific knowledge at any stage of the research process.

Open science is now firmly on Europe’s policy agenda. In 2015, the European Commission named it one of three priority policy areas for research, science and innovation. In this emerging area there is, however, a lack of information about open science practices to inform policy making.

RAND Europe and partners were asked to develop a monitor to provide an evidence base that tracks worldwide trends in open science and identifies the main drivers and barriers to its evolution. The monitor is hosted by the European Commission Directorate-General for Research and Innovation and supports the Open Science Policy Platform to facilitate structured discussion between stakeholders. By providing policy makers and others with access to open science data and trends, the monitor supports initiatives across Europe and informs policy making to increase the exchange of scientific knowledge worldwide.
Tackling violent radicalisation and extremism

With terrorist activity increasing around the world, and new forms of terrorism emerging, there is an urgent need to understand the effectiveness of current strategies countering violent extremism.

The European Union and individual member states have invested heavily in policies, programmes and interventions to prevent and tackle violent radicalisation and extremism. There is still, however, only limited knowledge of what works best in this field.

To advance understanding, RAND Europe led 14 partner organisations in establishing the IMPACT Europe project. Over three and a half years, the project sought to analyse what works in preventing and tackling violent radicalisation and extremism.

The project revealed that the most promising practices for tackling these issues were simply not known. No standardised methodology existed to identify practices, and the knowledge and capacity to perform robust evaluations was also lacking.

Our researchers developed an online evaluation toolkit that helps stakeholders objectively assess different interventions using the most appropriate and scientifically robust methods. It can be used by any stakeholder in the field, from government policy makers to frontline workers in NGOs, social work and law enforcement.

The IMPACT Europe toolkit also provides a database of practices in the counter violent extremism field, and lessons learned from previous evaluations. The hope is that rigorous evaluation of policies and programmes will become the norm, enabling new strategies that get the best results for individuals and society.

There is no point in waiting until the tidal wave of radicalisation is over to reflect upon the outcome of our efforts to combat it.

Jacopo Bellasio managed the IMPACT Europe project
The success of Brexit depends to some degree on its economic impact. A range of possible trade opportunities and arrangements could be agreed between the UK and the EU, and with other countries, such as the US.

Using an economic model, we analysed the implications of eight different trade scenarios involving the UK, EU and US after Brexit. The study revealed that it would be in the best interests of the UK, and to some extent the EU, to work together to achieve some form of open trading and investment relationship post-Brexit. Failure to achieve any such relationship is likely to have negative implications for both the UK and the EU, and provide little, if any, gain for the US. In particular, the UK is likely to be economically worse off outside the EU under most plausible trade scenarios.

Of the eight scenarios analysed, the worst option for the UK would be to leave the EU with no deal and simply apply World Trade Organization (WTO) rules. This scenario could reduce the UK’s future GDP by around 5 per cent after ten years, a loss of £109 billion.

The EU would also be likely to lose out from trading under WTO rules, but not to the same extent as the UK. The economic loss to the EU could be about 0.7 per cent of its overall GDP, or about £76 billion.

The seven other trade scenarios appear to be considerably better for the UK than trading under WTO rules. However, most options would probably still lead to economic losses compared with its current status as an
Trading under WTO rules could reduce the UK’s future GDP by around 5% after 10 years, a loss of £109bn.

EU member – even ‘soft Brexit’ scenarios, such as the Norway option of Single Market access.

The only scenario examined likely to have a positive economic benefit would be a trilateral agreement between the UK, EU and US, similar to the shelved Transatlantic Trade and Investment Partnership (TTIP) agreement. This option would leave the UK 7.1 percentage points of GDP better off than the WTO rules scenario: a slightly better outcome than continued EU membership. However, this arrangement is seen as very unlikely in the current political environment.

For the US, the economic effects of most trade scenarios appear negligible, apart from the trilateral UK–EU–US agreement. The political and security effects of Brexit are likely to be of greater significance to the US, which will miss the influence that the UK brings to the EU decision-making process, particularly around foreign policy, security and defence.

The study also used game theory insights to create a better understanding of how a wide variety of factors might affect the outcome of the Brexit negotiations and influence trade talks between the UK and EU. Our insights suggest that the EU is likely to cooperate with the UK to reach an arrangement that suits both parties. However, it may see benefit in adopting a ‘zero-sum game’ approach as a way to discourage other member states from withdrawing, which we assessed to be the EU’s top political priority.

For the UK, our findings show clearly that negotiators should seek ways to move towards a ‘positive-sum game’ as talks proceed. This will help to ensure the best possible deal for all parties. A UK strategy of trying to pick apart European unity is unlikely to work since it is in the best interests of all EU member states to work together.

**THE EIGHT DIFFERENT TRADE SCENARIOS WERE A MIX OF ‘HARD’ AND ‘SOFT’ BREXIT SCENARIOS:**

- **‘HARD’ BREXIT**
  - An arrangement in which UK trade is governed by WTO rules
  - The successful negotiation of a UK–EU free trade agreement (FTA)
  - The creation of a UK–EU–US FTA based on the proposed Transatlantic Trade and Investment Partnership (TTIP)
  - An extended transition period during which EU and UK tariffs do not change but other non-tariff barriers to trade come into effect

- **‘SOFT’ BREXIT**
  - The Norwegian model (membership of the European Economic Area)
  - The Swiss model (a series of bilateral agreements)
  - A customs union
RAND Europe’s use of gaming techniques allows decision makers to consider complex problems in a simulated environment as a test bed for different policy options. Participants are able to think creatively about ways to tackle issues and gain different perspectives on the cross-sector consequences of decisions.

The most traditional version of gaming, well known to the defence sector, is the military board game, used to test the possible effects of decisions made in times of conflict. Gaming comes in many forms, however, and can be applied to many sectors. In 2017 RAND Europe used bespoke games in a variety of situations to create a better understanding of how a range of factors might affect outcomes.
The future of Arctic cooperation in a changing strategic environment

The Arctic has become an area with increased potential for conflict among nations due to its rich natural resources, maritime activity and other factors. While cooperation in the region remains strong for now, RAND Europe conducted a tabletop gaming exercise to examine the factors that could potentially upset cooperation over the 2020 decade. Attendees included participants from the Arctic nations, including diplomatic and defence organisations, shipping and oil industries, indigenous communities and security research institutions. The participants were presented with plausible starting conditions for the year 2020 and asked to consider courses of action and possible reactions as various events transpired. The game helped generate insights about the strength of cooperation, potential triggers for tensions and the advantages and shortcomings of potential policy options in the Arctic.

Delivering strategic gaming for senior defence officials

2017 was the first of three academic years in which RAND Europe has been asked to design and deliver the strategic gaming component of the UK Royal College of Defence Studies’ (RCDS) one-year Strategic Studies Course for senior defence officials from around the world. Each strategy exercise involves all 110 RCDS course members facing a number of hypothetical international crises in near real time. Participants play in groups as designated countries to generate national security strategies, decide courses of action, brief officials, conduct negotiations and handle the press. In addition to building knowledge of strategic-level decision making, the strategy exercises help strengthen bonds between RCDS course members, many of whom will become future Chiefs of Defence or hold other senior roles in their respective countries.

WHAT IS GAMING?

In conflict situations, the choices made by decision makers are crucial. Yet complex situations typically have multiple dimensions that should be considered well before decisions are made. So how can decision makers evaluate their options for scenarios that have not yet happened? Gaming, an established research methodology, brings people together to consider what steps might be taken in hypothetical situations rooted in the real world. By interacting with people from a range of domains, participants can gain wider perspectives and explore the possible ramifications of their decisions.
Strategies for addressing antimicrobial resistance

In 2017 RAND Europe pushed the boundaries of gaming applications to the health sector in an innovative way. Antimicrobial resistance (AMR) is an incredibly complex policy issue, affecting human health, animal health and the environment. We developed and led a resource allocation game to encourage stakeholders to discuss the potential consequences of different policy actions through plausible future scenarios.

The game reached a high-level audience of policy makers, practitioners, funders and academics, including the Chief Medical Officer for England, Professor Dame Sally Davies, and the UK’s Chief Veterinary Officer, Professor Nigel Gibbens. Participants were encouraged to consider different approaches to address the rise in resistance to antibiotics. The insights gained during the game were used to inform policy decisions regarding what to include in the UK’s revision of its current AMR strategy.

“The RAND gaming event used real-life scenarios to stimulate and engage a wide range of stakeholders across the UK and provided a fresh way of looking at AMR – views were challenged, new ideas formulated, and areas for further work were identified. I am grateful for the support of RAND in helping us to identify new ways to think about the complex issue of AMR both at home and abroad.”

Professor Dame Sally Davies, Chief Medical Officer, England

Jenny Oberholtzer and Jirka Taylor at the AMR game
Governments and other organisations worldwide are increasingly concerned about the threat of cyberattacks, such as the May 2017 ransomware attack that disrupted the systems of many NHS trusts. Most are now taking measures to keep cyberspace open, safe, secure and resilient. However, cybersecurity poses a range of technical, organisational and strategic security challenges.

Our cybersecurity research covers many different areas, from providing strategic advice on threats and challenges to strengthening cyber defence capabilities. In 2017 our work included high-profile projects with NATO and the European Defence Agency (EDA) and explored the potential cybersecurity threats to the 2020 Tokyo Olympics.
Reforming NATO’s cyber acquisition process

NATO sought RAND Europe’s support to help define the strategic challenges it faces in developing its cyber capability and adjusting its acquisition processes. We identified a number of issues, including access to funding and the organisational culture and structure of NATO.

Our recommendations focused on developing appropriate cyber policies and strategies, encouraging innovation and industry engagement and investing in people, knowledge and skills.

NATO is using the recommendations as a reference point for organisation-wide cyber reform, which will also need to be aligned with other NATO defence capabilities. Our report was briefed to NATO’s Deputy Secretary General and other key NATO stakeholders.

67% of organisations report insufficient funds to defend themselves against cyberattacks

Working with the EDA on European cyber defence priorities

Throughout 2017, RAND Europe worked with the EDA on numerous defence and security research projects.

In relation to cyber defence, we conducted a feasibility study examining options for establishing a European Cyber Defence Training Centre for Common Security and Defence Policy operations and missions. Our researchers assessed the prospects of such a centre and its potential added value to European cyber defence. Following the conclusion of the study, the training centre is now being set up within the European Security and Defence College.

As cybersecurity threats continue to evolve at a rapid pace, governments, institutions and organisations need to fully understand the operational and strategic effects of technological developments.

Erik Silfversten specialises in cybersecurity and cyber defence research.
Countering cybersecurity threats to the 2020 Tokyo Olympics

Japan has been planning for the security of the 2020 Tokyo Olympics by establishing security measures to protect critical national infrastructure, improve cyber defences, and protect tourists and participants. Concerns have been voiced, however, about Japan’s preparedness to deal with a large-scale cyber incident.

RAND Europe analysed potential cyber threats to the Summer and Paralympic games and made recommendations to strengthen cybersecurity. We assessed foreign intelligence services to be the most significant cybersecurity threat, closely followed by cyberterrorists and cybercriminals involved in organised crime.

Two further cybersecurity threats also stood out as particularly relevant to the 2020 Tokyo Olympics: global ransomware and cyber propaganda. Both emerged as prominent security threats in 2017 and have the potential to seriously disrupt the Games.

**THREAT ACTORS TO THE 2020 TOKYO OLYMPICS**

- Foreign intelligence services
- Cyberterrorists
- Cybercriminals
- Hacktivists
- Insider threats
- Ticket scalpers
In July 2016, an 18-year-old used a Glock 17 handgun purchased on the ‘dark web’ to kill nine people and injure 36 others in Germany. The incident cemented widespread public concern that the dark web is an enabler for terrorists and criminals seeking firearms. The perpetrator of a similar (although foiled) attack boasted that acquiring his pistol on the dark web was as easy as ‘buying a chocolate bar’.

The dark web is an unsearchable portion of the internet that requires special software packages to navigate. Users can access it anonymously, free from surveillance, to download illegal content or purchase illegal goods.

Our study with the University of Manchester is the first piece of research to explore the size and scope of the illicit trade of firearms, explosives and ammunition on the dark web.
Over a single week in September 2016, we collected primary data around the sale of arms-related products on dark-web cryptomarkets. We found that the dark web is an enabler for trading illegal weapons already on the black market, and a potential source of diversion for legally owned weapons. It also increases the availability of newer, better-performing firearms for prices comparable to older weapons sold on the offline black market.

Our analysis showed that firearms (42 per cent) are the most common product offered among the arms-related listings on the dark web, followed by digital products (27 per cent). The latter include tutorial guides for a wide range of illegal actions, such as making homemade guns and explosives, as well as models for 3D printing of fully functional firearms.

Almost 60 per cent of firearms listings on the dark web are associated with products that originate from the US, followed by Europe which accounts for roughly 25 per cent of listings. However, Europe represents the

60% of the firearms listings on the dark web were for products originating from the US
CRAWLING THE DARK WEB

To collect the data for this study, our researchers used software specifically designed to connect to cryptomarkets (bypassing any authentication processes) and download (‘crawl’) data from any page associated with them. After all the data is collected, the tool extracts (‘scrapes’) specific information from the downloaded pages. As a result, our researchers were able to analyse data while limiting exposure to the dark web, its contents and users. In 2018, RAND Europe will further develop its research capability by developing its own dark web crawler and scraper.

largest market for arms traded on the dark web, generating revenues that are around five times higher than the US.

Based on the data analysed, we estimate that the value of the arms trade on cryptomarkets is around $80,000 per month. Furthermore, with 136 firearms or associated products sold every month, the security implications of trade on the dark web should concern policy makers.

Given this finding, the study concluded that the dark web is unlikely to be the method of choice to fuel conflicts, as weapons are not traded at a large enough scale. However, it has the potential to become the platform of choice for individuals (e.g. lone-wolf terrorists) or small groups (e.g. gangs) to obtain weapons and ammunition, due to the anonymity it provides.

The illegal arms trade on the dark web has created new challenges for law enforcement agencies and national governments, as it facilitates arms trafficking on a global scale across international borders. And, despite the relatively limited monetary value and volume of weapons traded on the dark web compared to other products (e.g. drugs) or firearms products trafficked offline, the potential

Worldwide distribution of arms vendors by region
The ability to arm criminals and terrorists, who can make virtually anonymous purchases, is perhaps the most dangerous aspect of the dark web.

Giacomo Persi Paoli leads the terrorism, security and resilience research portfolio at RAND Europe.
The future of digital

Digital technology is becoming increasingly intertwined with everyday life: from schooling and education to political engagement and even financial and health management.

While digitalisation offers many opportunities, there is also a crucial need to understand and mitigate the challenges it presents to society. In 2017, RAND Europe worked in partnership with the Corsham Institute on thought leadership events about the UK’s ‘connected society’. We also sought to understand the current landscape of blockchain, a new form of technology that can be used to manage digital transactions.

The implications of a ‘connected society’

Our work with the Corsham Institute showed that the UK will need to address a variety of challenges if it is truly to benefit from digital technologies.

Four thought leadership events – digital learning, open science, digital currency and civic engagement – flagged up warnings for policy makers, highlighting the fact that the pace of technology change is fast outstripping society’s ability to manage its impact.

If the digital skills gap is not addressed, then existing inequalities will increase. If proper planning for social and economic disruption does not take place, many people will be excluded from the potential benefits. If risks around data use and ethics are not anticipated, public trust will be undermined. And if empathy and social norms in the online world are not prioritised, civic engagement and democracy may suffer.

Participants stressed the need for greater planning to manage the potentially adverse social and economic effects of an increasingly digitalised society. The Corsham Institute and RAND Europe have launched the Observatory for a Connected Society app, which hosts the latest data, analysis and opinion on the subject, to help address this need.
The opportunities and challenges of blockchain

Blockchain acts as an online ledger spread over multiple locations, recording information in digital blocks that form an encrypted digital chain which grows as new information is added over time. Any information added to the chain is secure and unchangeable, meaning blockchain could potentially serve as an alternative way of storing and securing information on a large scale. Our research on blockchain was commissioned by the British Standards Institution to understand whether developing standards for the technology would support its growth.

The analysis suggested that blockchain offers an array of opportunities, from efficiency gains and cost savings to its potential to provide a clear audit trail and reduce fraud. However, as blockchain is still a relatively new technology, there are a multitude of significant challenges to contend with, from high implementation costs to concerns about data privacy.

As blockchain becomes more widespread, standards could help address such concerns and establish a stronger consensus on consistent terminology to improve understanding of the technology. Standards could also help ensure that multiple blockchain implementations can exchange information.

“Now is the time for policy makers and industry to find out what blockchain could offer”

Salil Gunashekar leads RAND Europe’s research on blockchain technology
The international mobility of people is an important part of any research system. The UK is no exception, and it benefits from the skills and expertise of international researchers.

RAND Europe was commissioned by the Royal Society to deepen understanding of researcher mobility patterns and drivers, with a particular focus on mobility to and from the UK. The study took on additional importance following the UK’s decision to leave the EU.

Our research showed that the UK is one of the most popular global research destinations for international researchers, due to its reputation as a prestigious place to develop both careers and networks.

EU nationals make up a large proportion of non-UK national researchers working in the UK. Some 3,600 researchers
came to the UK from other EU countries between 2007 and 2013. By comparison, only 600 UK researchers left to work elsewhere in the EU over the same period.

The UK has also benefited from EU research funding schemes, such as European Research Council grants and Marie Sklodowska-Curie actions.

There is a professional expectation that researchers are internationally mobile. In fact, nearly 80 per cent of those surveyed in our study agreed that to be a good researcher you must be willing to move abroad.

Professional factors, such as career development and the research environment, featured strongly as reasons why researchers moved abroad. On the other hand, family and personal factors, such as having children and/or a long-term partner, were the main reasons why researchers chose not to move abroad. Nearly 80 per cent of respondents said that having children made them less likely to move between countries, while 60 per cent with long-term partners were less likely to relocate.

Finding suitable employment for a partner was the most

80% of researchers agreed there is an expectation that to be a good researcher you must be internationally mobile.

The impact of families and relationships on mobility

- 60% of respondents said that having a long-term partner made them less likely to move between countries.
- 79% of respondents said that having children made them less likely to move between countries.
- 92% of respondents’ choice to stay in the UK.
- 43% of respondents’ choice to move back to the UK.

Amongst those with children, family reasons are cited as a reason for:

Finding suitable employment for a partner is the most frequently cited barrier to mobility (except for short-term mobility) amongst those with a partner.
The importance of international mobility to the UK

Among EU member states, the UK has been the top receiving country for PhD candidates from both within and outside the EU:

- The UK makes up 5% of the total population of OECD countries...
- but hosts 15% of the students studying for masters and PhD degrees in OECD countries...

The number of international students studying in UK research degree programmes tripled from 1994/95 to 2012/13

During FP7 (2007–2013), the UK was the most popular destination for the European MCSA programme, which supports researchers’ career development

The UK leads the EU in the number of prestigious ERC grants it hosts. In 2016:

- 117 grants were awarded to researchers who would work in the UK although only 45 grantees had UK nationality

Increase in percentage of UK academic staff who are non-UK nationals:

- 19% in 2005/6
- 29% in 2015/16

72% of active UK researchers have trained or worked as researchers abroad
Regardless of duration, the USA, Germany and France are the most common destinations for researchers from the UK. Australia, Canada and Japan are also important destinations. 80% of non-UK nationals in the UK have EU or North American nationalities.

frequently cited barrier to mobility among researchers with a partner. Other more specific barriers to researcher mobility to the UK were the high cost of living and the ability to obtain work visas.

Although not a focus of the study, Brexit emerged as an area of concern for researchers. International researchers based in the UK expressed uncertainty about the future of their research and profession post-Brexit, including their long-term financial security. They reported feeling unwelcome in the UK due to a perceived increase in xenophobia and uncertainty around the rights of EU nationals.

Maintaining a high calibre and variety of research in the UK will be important in ensuring that it retains its reputation as an attractive destination for the best international researchers.

However, UK policymakers should also consider how best to address other more practical barriers identified in the study, for example by helping international researchers to access a good standard of living and obtain employment for partners.

“A stark finding was the pressure to be internationally mobile in order to have a successful career in academia”

Sue Guthrie, lead author of this study, specialises in science, innovation and research policy.
Later school start times
Only about 40 per cent of US teenagers get the eight to ten hours of sleep a night recommended by sleep scientists and paediatricians. A major reason for this deficit is not biology or technology, but public policy – specifically, school start times. The overall average nationwide start time of American middle and high schools is 8.03 a.m.

While the scientific evidence has always supported later school start times, the economic impact has not previously been considered in much detail. In 2017, RAND researchers conducted a comprehensive analysis of the economic implications of later school start times across 47 US states.

Using a novel macroeconomic model to project potential economic gains, we found that a nationwide shift to an 8.30 a.m. school start time could contribute $83 billion to the US economy within a decade. Over the 20-year period studied, the US economy could gain around $9 billion each year.

Within two years, the economic gain would already outweigh the costs of delaying school start times. These costs include rescheduling bus routes, and providing floodlights for after-school sports events and training.

Our study showed that the economic gains would be realised through the higher academic and professional performance of students and a reduction in car crash rates among adolescents.

One additional hour of sleep is estimated to increase the probability of high school graduation and the college attendance rate. Both these factors have a direct impact on the future financial earnings of teenagers and their future contribution to the economy.

Motor vehicle crashes are the number one cause of teenage deaths in the United States, and around 20 per cent of car crashes involve a driver impaired by sleepiness, drowsiness or fatigue. The impact of young adults dying prematurely has a negative effect on the future labour supply of an economy.

US states are beginning to explore later start times for middle and high schools. In 2017 California discussed a state-wide move to 8.30 a.m., which is set to be re-examined and debated in 2018. In addition, other school districts across the United States are increasingly considering delaying school start times.
Emerging and diverse types of data present new opportunities for research and innovation around complex societal challenges. In 2017, we explored the value of health and ambulance data in meeting some of these challenges in health systems and policing.

**Using health data to improve health systems**

Our work for the European Federation of Pharmaceutical Industry Associations found that greater access to and use of health data could provide diverse social and economic benefits to health systems. These include helping improve the quality and efficiency of care, prospects for new types of research and innovation, and empowering citizens to take a more active role in maintaining good health.

Policy makers, however, will need to address a series of social and technical issues in order to maximise the potential benefits of using health data, such as public acceptability, data regulation and governance issues, data quality and the ability to share data between different health system stakeholders.

> In a changing health data landscape, there is a need to consider a richer and broader array of data and evidence in decision making

Sonja Marjanovic leads RAND Europe’s work in the field of health data
Using ambulance data to help fight violent crime

The last year saw violent crime in England and Wales increase by nearly 20 per cent, according to figures from the UK’s Office for National Statistics.

In collaboration with West Midlands Police, our study, led by Alex Sutherland, considered whether ambulance data could be used by police forces to help prevent violence.

We found that ambulance data recorded significant new information on violent incidents, between 66 and 90 per cent of which were not found in police data. There is also a high volume of data, with ambulance call-outs for public violence incidents averaging 16 per day in the West Midlands. This suggests that ambulance data could help build a fuller picture of the location and characteristics of violent crime, to assist police in targeting resources more effectively.

Our work has encouraged police forces to take more interest in using ambulance data given its ease of implementation, cost-effectiveness and the high volume of recorded incidents. If ambulance data proves to be effective in reducing crime, the method would be easily scalable, since the data is collected automatically and requires little additional work to be collated and shared.
What British people want from Brexit

The June 2016 EU referendum result provided little information about the sort of post-Brexit relationship that the British people want with the EU. Did the vote to leave mean the UK leaving the EU Single Market, limiting migration to the UK, making the UK’s own laws and/or making the UK’s own trade deals?

To answer these questions, researchers from RAND Europe, the Policy Institute at King’s College London and the University of Cambridge used ‘stated preference discrete choice experiments’ to try to quantify the British public’s preferences for the UK in a post-Brexit world.

The principle of this methodology is that goods and services are described by the key attributes upon which people base their purchasing decisions. Using a chocolate bar as an example, key attributes may be whether it is milk or dark chocolate, how many grams the bar weighs, whether it has nuts and how much it costs.

For this study, our aim was to quantify the attributes of the UK’s future relationship with the EU that are most important to the British public. We focused on seven key attributes including freedom of movement, trade deals, Single Market access, law-making sovereignty and net contribution to the EU budget.

The study showed that the British public want a Brexit deal and are willing to compromise to get one. Taking all positives and negatives into account, respondents valued the current situation of EU membership at about £14 per household per week more than leaving the EU with no deal.

Respondents valued the current situation of EU membership at about £14 per household per week more than leaving the EU with no deal.
The British public want a deal and are willing to compromise to get one

Charlene Rohr specialises in choice modelling and was the RAND Europe research lead for this study.
Based on a survey of almost 1,000 members of the British public, who were asked to trade off different aspects of a possible agreement to exit the EU, we find that:

The British public want a deal

People are more concerned with managing demand for public services than simply restricting freedom of movement

People highly value having access to EU markets for trade in goods and services, but also would like the UK to be able to make its own trade deals

People value the UK being able to make its own laws, but not as much as Single Market access or the ability to make trade deals

People with degrees hold stronger views

People prefer a final agreement which is close to an agreement that is similar to the Norway model
According to the World Health Organization an estimated 83 million working-age people across Europe have experienced at least one mental health problem. Our research attempts to understand the impact of poor mental health and wellbeing across the workforce, looking at multiple professions and sectors.
In 2017, we continued our work for Vitality Health on its annual Britain’s Healthiest Workplace survey. The aim is to gain a better understanding of the health and wellbeing of the UK’s workforce, its impact on productivity and how organisations can help improve the physical and mental wellbeing of their employees.

Some 31,950 employees from 167 organisations participated in this year’s survey, which covered large, medium-sized and small companies from across the public and private sectors.

We found that an average of 30 working days are lost per staff member each year. This is due both to absenteeism – when employees do not show up for work – and also to ‘presenteeism’, when employees come to work but perform at a sub-optimal level.

Mental health problems can severely reduce employee productivity. In 2017, the proportion of respondents who reported suffering from moderate or severe depression increased to 6 per cent, up from 4 per cent in 2016. Moreover, two-thirds of employees reported financial concerns, which are widely known to be significant causes of stress and also mental ill health.

The good news for employers is that our survey feedback suggests that workplace health and wellbeing programmes do have a positive impact. These include initiatives to promote both physical wellbeing, such as running clubs, cycling to work and on-site gyms, and also mental wellbeing, such as relaxation classes and time management training.

Following our work in the UK, we were asked by AIA Vitality to analyse the results from Asia’s Healthiest Workplace, a survey of the health and wellbeing of employees in Australia, Hong Kong, Malaysia and Singapore.

Wellbeing programmes at work have been proven to have a positive impact on the economic, social and health outcomes of individuals, organisations and communities.

Chris van Stolk leads RAND Europe’s work on mental health and wellbeing.
Researcher mental health

Although it has long been suspected that academic researchers and university staff face significant mental health challenges, there has been very little research focusing on these groups. The Royal Society and Wellcome Trust asked RAND Europe to assess what is known about mental ill health in the research environment.

The limited evidence available suggests that the wellbeing of academic staff is worse than for most other types of employment. In fact, we found that the levels of burnout among university staff match those of known high-risk groups, such as healthcare workers. However, identifying mental ill health among staff remains a significant challenge for the higher education sector. One particular problem is staff not disclosing their mental health conditions.

Recent UK national statistics show that only 6.2 per cent of university staff disclosed a mental health condition to their employer. However, between 32 and 55 per cent of academic employees are at risk of having or developing a common psychiatric disorder, putting academics among the occupations at greatest risk, alongside social care and teaching.

Our analysis suggests that the mental health and wellbeing of academic and university staff is an under-acknowledged problem for the profession and is yet to be fully addressed.

32–55% of academics are at risk of having or developing mental health conditions

SIX ASPECTS OF WORK ARE RECOGNISED AS IMPACTING ON WORKERS’ STRESS:

- Work demands
- Job control
- Change management
- Work relationships
- Support provided by managers and colleagues
- Clarity about one’s role
Policy Research in Science and Medicine (PRiSM) was established in 2010 as a collaborative research unit, led by RAND Europe and the Policy Institute at King’s College London, to provide research-based evidence to the Department of Health for the development of UK research and development (R&D) policy in health and social care. Over its seven-year term, PRiSM delivered over 60 projects on a vast range of topics including studies on dementia, mental health research, cardiovascular and stroke research, alternatives to peer review, evaluations of ongoing programmes supported by the National Institute for Health Research (NIHR), and a number of bibliometric studies supporting research funding assessments. PRiSM was at the forefront of exploring science policy and its effectiveness, while helping further the understanding of the ‘science of science’ in the UK, Europe and internationally.

Three key questions underpinned PRiSM’s work. How can funders support research and researchers to bring about the greatest good for society? How do public R&D funders understand the impact of the research they support? And which data help to make better policy decisions in health and medical research?

Among other contributions, PRiSM helped to establish the NIHR Dashboard, which feeds into Prime Ministers’ Questions and also allows the Chief Medical Officer and other senior decision makers to access accurate and real-time data on NIHR activity anywhere in the world.

PRiSM’s study on dementia helped to inform the Prime Minister’s 2020 Mental Health Challenge document.
Healthcare solutions

The UK healthcare system faces mounting year-on-year pressure to reduce costs while continuing to deliver high-quality services. RAND Europe has been involved in numerous studies to evaluate and analyse potential short- and long-term solutions.

The future of health

In 20 years’ time the health landscape will look very different to today, given rapid advancements in science and technology, and demographic and societal changes. Understanding the future of health is therefore paramount when developing strategies and priorities.

To this end, the National Institute for Health Research asked RAND Europe to capture perspectives from experts across health and science on the potential health challenges England will face in 20–30 years’ time.

Ageing populations pose the biggest challenge since, despite living longer, people will not necessarily be healthier, and England’s population will increasingly suffer from more complex illnesses. Unhealthy lifestyle choices, changing patterns of infectious disease and the rising prevalence of mental health issues will add to this complexity.

Surveyed experts identified advances in technology, medicine and data access that can be harnessed to improve healthcare. Advances in genomics, personalised medicine and data use could potentially transform prevention, diagnostics and treatment, for example to facilitate patient self-management approaches.

One concern is that these advances will further exacerbate health inequalities. Healthcare delivery and organisation is expected to shift towards the more holistic, integrated models of care and prevention needed to tackle increasingly complex physical and mental conditions.
The ‘telephone first’ approach

A recent initiative, where patients speak with GPs on the telephone before receiving face-to-face consultations, the ‘telephone first’ approach, is said to reduce waiting times for appointments, improve patient experience and reduce A&E attendance and emergency admissions. The National Institute for Health Research commissioned the Cambridge Centre for Health Services Research – a RAND Europe and University of Cambridge collaboration – to evaluate these potential gains.

We found that the ‘telephone first’ approach is by no means a silver bullet for reducing costs or meeting demand. While hailed in NHS literature as cost saving, we found no evidence that it saves money or reduces hospital referrals.

Far from reducing secondary care costs, we found that overall secondary care costs increased slightly by £11,776 per 10,000 patients. There was also no evidence to show that the approach substantially reduced overall attendance at A&E departments or emergency hospital admissions.

We did see a change in GP consultation patterns; however, these changes were often accompanied by an increase in GP workload. Telephone conversations increased twelve-fold and there was a considerable drop in face-to-face consultations. Overall, GP consulting time did increase by 8 per cent, though there was wide variation between practices. The fall in face-to-face consultations suggests that patients’ problems can often be dealt with over the phone, but this approach does not necessarily suit all patients or practices.

“...We need to be careful about seeing ‘telephone first’ as a panacea: while it increases control over GP’s daily workload it does not necessarily decrease consulting time.”

The number of face-to-face consultations with GPs fell by 38%.

Jenny Newbould has a joint post at RAND Europe and the Cambridge Centre for Health Services Research and was lead author on this study.
Teacher shortages in Cambridgeshire

With the number of school-aged children in the UK county of Cambridgeshire projected to increase over the next ten years, Cambridge Ahead commissioned RAND Europe to examine the extent of teacher shortages and the factors associated with this. We found that shortages could be a real threat unless more new secondary school teachers are attracted and retained.

Our study identified two main possible causes behind the shortages. One is an insufficient replacement rate of teachers. The gap between the proportions of new entries and retirees in Cambridgeshire is large compared to the national level, especially for secondary school teachers of science, technology, engineering and mathematics (STEM) subjects.

The other issue is that working conditions in the county have become less attractive since 2010 compared to nationally. Over this period, Cambridgeshire teachers have been more likely to earn a salary within lower pay ranges, work part-time and work under fixed-term or temporary contracts.

As part of the solution, more research is needed to explore the association between certain aspects of teachers’ working and living conditions. Furthermore, additional data is needed to fully understand the reasons why too few teachers are attracted to work in Cambridgeshire and why teachers are leaving the profession.

19% of STEM secondary school teachers in Cambridgeshire are retiring but only 11% are new entrants to the region.
LOOKING BACK to plan ahead

The RAND Europe office in Delft (1994)
BACK TO THE PAST
Twenty-five years ago, the RAND Corporation established the European American Centre for Policy Analysis (EAC). Housed in modest offices at the Delft University of Technology in the Netherlands, RAND set out to create a European enterprise with the same mission to help improve policy and decision making through research and analysis. The team sought to create a permanent and distinctively European presence that could also draw on RAND's established skills and expertise for the benefit of its European clients.

Hiring local researchers, the EAC began its work as an impartial not-for-profit research organisation. Fast forward through a name change, several office relocations and thousands of projects, the small company that was EAC has grown and flourished into the RAND Europe we see today: a thriving research institute, with over 100 staff based in offices in Cambridge and Brussels. RAND Europe's knowledge has expanded to cover a kaleidoscope of topics: health, science, innovation, defence and security, transport, criminal justice, education, employment and social policy.

ALWAYS LOOKING AHEAD
As RAND Europe celebrates its 25th year, we look ahead to new opportunities to shape and inform future policy. In the not-so-distant future, RAND Europe will be celebrating another milestone: our ten-year presence in Brussels. This milestone comes at a crucial time. The historic shift in relations between the EU and the UK following Brexit will have implications for the whole continent of Europe as new boundaries impact European policy making and collaboration.

Our Brussels office will continue to be a hub for thoughtful pan-European research, whatever the final nature of these changes. As we move into 2018, we are excited to be working on projects for a range of clients from the public, private and third sectors. Our dedication to research across Europe remains a constant even as new challenges for policy makers emerge.

“Over the past ten years we have studied some of the biggest challenges the EU has faced, including the migrant crisis, Brexit, radicalisation and social policy.”

Stijn Hoorens heads the RAND Europe Brussels Office
Events in 2017

DIGITISING HEALTHCARE
Our distinguished speaker at the Cambridge Centre for Health Services Research’s (CCHSR) annual lecture this year was Dr Robert Wachter, chair of the University of California San Francisco's Department of Medicine, bestselling author of 'The Digital Doctor,' and leader of the group that authored the 2016 'Wachter Report' on digitising the NHS. Dr Wachter explained why digitising healthcare is so hard, and what needs to be done to get it right, while drawing on examples from the UK and the United States. The CCHSR is a collaboration between the University of Cambridge and RAND Europe that informs policy making through evidence-based research on health services.

YOU ARE WHAT YOU SLEEP
RAND Europe sponsored a public event for the Cambridge Festival of Ideas – ‘You are what you sleep’ – that explored the growing problem of sleep deprivation in society. Four panellists, including RAND’s own Marco Hafner and Wendy Troxel, highlighted different impacts of sleep deficit, from its repercussions for the development of children and teenagers to its effects on family life and relationships, businesses and the wider economy. The event was at full capacity, with 150 attendees.

CONNECTED SOCIETY
To mark the second year of RAND Europe’s collaboration with the Corsham Institute on the Connected Society Thought Leadership Programme, we held an event at the House of Lords, which also launched the new Observatory for a Connected Society. Speeches from RAND Europe President Hans Pung and Rachel Neaman, the CEO of the Corsham Institute, featured alongside a video message from the digital minister Matt Hancock.

KEEPING TIES
RAND Europe hosted three receptions in 2017 to celebrate our 25th year of informing policy across Europe. The events, held in London, Cambridge and Brussels, brought together clients and collaborators to celebrate and discuss objective research and analysis. Our guests heard speakers Carl Bildt, former prime minister of Sweden, and Jane Paterson-Todd, Chief Executive of Cambridge Ahead, speak about the global geopolitical challenges we face today and the importance of evidence in policy making.
The guidance RAND Europe receives from our Council of Advisors enriches our work and helps us fulfil our mission to improve policy and decision making through objective research and analysis. The wealth of knowledge and diverse experience of our council members is of immense benefit to RAND Europe and our clients.

This year we were fortunate to welcome two new distinguished members to our council: Máire Geoghegan-Quinn and Florian Freiherr von Heintze.

Máire Geoghegan-Quinn was EU Commissioner for Research, Innovation and Science (2010–2014). Prior to this she was a Member of the European Court of Auditors (2000–2010) and an elected member of the Irish Parliament for 22 years. Since her retirement from politics in 1997, Geoghegan-Quinn has held positions in both the academic and private sectors. She holds honorary doctorates in Science and in Law and has received several prestigious awards, including the Légion d’Honneur presented to her by then French President François Hollande in 2014.

Florian von Heintze is the Deputy Editor-in-Chief of BILD, Europe’s best-selling newspaper, with over 30 years of media experience. He was previously a foreign correspondent in New York and Washington, and a political correspondent in both the former German capital Bonn and in East Berlin during German reunification. In addition to overseeing BILD’s reporting of the news, von Heintze has initiated campaigns on a range of important social topics, including climate change and the 2015 European refugee crisis.

MEMBERS SERVING IN 2017

Michael D. Rich (Chairman)
President and Chief Executive Officer, RAND Corporation
Paul Adamson OBE  
Partner and Chairman, Forum Europe; Editor-in-Chief, E!Sharp

László Andor  
Former Commissioner for Employment, Social Affairs & Inclusion, European Union

Carl Bildt  
Former Prime Minister, Former Minister for Foreign Affairs, Sweden

Professor Dame Carol Black DBE FRCP FMedSci  
Principal, Newnham College, University of Cambridge

Sir John Boyd KCMG  
Former Chairman, Asia House

Philippa Foster Back CBE  
Director, Institute of Business Ethics

Máire Geoghegan-Quinn  
Former Commissioner for Research, Innovation and Science, European Commission

Florian Freiherr von Heintze  
Deputy Editor-in-Chief, BILD

Susan Hitch  
Director of International Relationships, The Listen Charity

Dr Gill Samuels CBE  
Member, Council of University College London  
Trustee, Science Museum

Professor Sir Gregory Winter CBE FRS  
Master, Trinity College, University of Cambridge

Professor David Howarth  
Professor of Law and Public Policy, University of Cambridge

Gunvor Kronman  
Chief Executive Officer, Hanasaari, the Swedish-Finnish Cultural Centre
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Accent | Accenture
| Action Global Communications
| Activ’Action |
| Addenbrooke’s Hospital |
| Age UK | AIA Group |
| Anglia Ruskin University |
| Arthritis Research UK |
| Association of American Medical Colleges |
| Association of the British Pharmaceutical Industry |
| Atkins |
| Brian Parry Associates |
| British Business Bank |
| Cambridgeshire and Peterborough CCG |
| Cancer Research UK |
| Center for International Legal Cooperation |
| Chafea |
| Corsham Institute |
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| Danish Ministry of Transport, Building, and Housing |
| Danish Road Directorate |
| Deloitte |
| Department of Health (England) |
| Digital Catapult |
| Digital Science |
| Discovery |
| Early Intervention Foundation |
| Eastern Academic Health Science Network |
| EC DG Communications Networks, Content and Technology |
| EC DG Employment, Social Affairs and Inclusion |
| EC DG Health and Food Safety |
| EC DG Justice and Consumers |
| EC DG Migration and Home Affairs |
| EC DG Research and Innovation |
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| EC Joint Research Centre |
| EC Research Executive Agency |
| Education Datalab |
| Education Endowment Foundation (EEF) |
| Eurofound |
| European Centre for Disease Prevention and Control (ECDC) |
| European Centre for the Development of Vocational Training (CEDEFOP) |
| European Climate Foundation |
| European Defence Agency |
| European Federation of Pharmaceutical Industries and Associations |
| European Investment Bank |
| European Parliament |
| EY |
| FFT |
| Fondazione Giacomo Brodolini |
| Forces in Mind Trust |
| French Ministry of the Armed Forces |
| Frontex |
| General Medical Council |
| GfK |
| GlaxoSmithKline |
| GSMA |
| Guy’s and St Thomas’ NHS Foundation Trust |
| Healthy London Partnership |
| Higher Education Funding Council for England |
| Highways England |
| IBF International Consulting |
| ICF |
| I Choose Life – Africa |
| IMC Worldwide |
| Independent Inquiry into Child Sexual Abuse |
| Institute for Employment Studies |
| International Centre for Social Franchising |
| International Finance Corporation |
| IoTUK |
Public sector
Foundations, charities and universities
Private sector

Areas of expertise

The multidisciplinary nature of RAND Europe’s research, combined with our diverse staff, ensures innovative, high-quality work across a vast range of policy areas:

- Defence & security
- Drugs, policing & criminal justice
- Education
- Employment, social inclusion, population & migration
- Health & healthcare
- International development
- Science, technology & innovation
- Transport
- Wellbeing in the workplace

We employ robust and rigorous methods and capabilities, backed up by peer review, to ensure the integrity of all our research, including:

- Choice modelling & behavioural research
- Economics & econometrics
- Evaluation for better performance
- Gaming
- Randomised controlled trials
OUR MISSION

RAND Europe is a not-for-profit research organisation that helps to improve policy and decision making through research and analysis.

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