

Faculty of Business, Law and Art – Annual Report for Research Centre (2017-18)

Name of Centre	Centre for Risk Research
URL of its website	http://www.southampton.ac.uk/risk
For academic year 2017-18	
Names and schools of all current members of the Centre	<p>Professors</p> <p>Prof. Chris Chapman, Southampton Business School Prof. Taufiq Choudhry, Southampton Business School Prof. Con Connell, Southampton Business School Prof. Brenda Hannigan, Head of Law School, Southampton Prof. Will Jennings, School of Social Sciences, Southampton Prof. Johnnie Johnson, Southampton Business School Prof. Frank McGroarty, Southampton Business School Prof. Christophe Mues, Southampton Business School Prof. Ming-Chien Sung, Southampton Business School Prof. Richard Werner, Southampton Business School Prof. Simon Wolfe, Southampton Business School Prof. Huifu Xu, Southampton Business School</p> <p>Other key academic staff</p> <p>Dr Bart Baesens, Southampton Business School Dr Mario Brito, Southampton Business School Dr Jeremy Cheah, Southampton Business School Dr Maxwell Chipulu, Southampton Business School Dr Ian Dawson, Southampton Business School Dr Ian Harwood, Southampton Business School Dr Jonathan Klein, Southampton Business School Dr Konstantinos Katsikopoulos, Southampton Business School Dr Tiejun Ma, Southampton Business School Dr Alasdair Marshall, Southampton Business School Dr Rudabeh Meskarian, Southampton Business School Dr Tri-Dung Nguyen, Southampton Business School Dr Stratos Ramoglou, Southampton Business School Dr Andrew Urquhart, Southampton Business School Dr Yue Wu, Southampton Business School Dr Jize Yan, Electronics & Computer Sciences, Southampton</p> <p>Research Associates</p> <p>Dr Peter Fraser-Mackenzie, Southampton Business School Jason Wang, Southampton Business School Chi Wan Cheung, Southampton Business School</p>

	<p>External Members</p> <p>Prof. Stefan Lessmann, Humboldt University Berlin Prof. William Benter, Visiting Professor, Southampton Business School Dr Itiel Dror, Cognitive Consultants International Dr Raquel Florez-Lopez, Pablo Olavide University of Seville Mr Garry Honey, Visiting Senior Fellow, Southampton Business School Mr Matthew Leitch, Visiting Lecturer, Southampton Business School Dr Andrew Grant, School of Finance, University of Sydney Dr Keith Smith, Risk & Decision Making Consultant</p>
<p>Names, job titles and FTE status of any staff employed exclusively on behalf of the Centre (if any)</p>	<p>Dr Peter Fraser-Mackenzie, KTP Research Associate Dr Jason Wang, Research Fellow Chi Wan Cheang*, KTP Associate</p>
<p>New academic appointments</p>	
<p>Very brief details of any seminars, meetings, conferences or workshops explicitly badged as Centre events</p>	<ul style="list-style-type: none"> • The Centre for Risk Research (CRR) hosted a seminar series exploring a variety of topics related to risk and decision making, including speakers from UK and international universities, from industry, and PhD students from Southampton Business School (7 seminars in total). • The CRR played a leading role in organising, chairing and facilitating the second China-EU Big Data and Finance Symposium in Shenzhen, China. The symposium attracted over 100 delegates. • Professor Chris Chapman recently delivered a Southampton Business School / CRR Evening Seminar, titled 'Which Opportunities and Risks Matter the Most', to local scholars and business delegates. • The CRR's Dr Mario Brito delivered invited lectures on the risks of autonomous underwater vehicles to an audience comprising marine and polar scientists at the Institute of Antarctic and Marine Studies (IMAS), Hobart, Tasmania and at the Australian Maritime Centre, Launceston, Tasmania. • The CRR's Matthew Leitch was a panellist at a "The dark side of the chain? Governing and Auditing Mutual Distributed Ledger (aka blockchain) Systems" conference, London, sponsored by the Chartered Insurance Institute.

- The CRR's Dr Konstantinos Katsikopoulos organised the 2nd TAPMI-Max Planck-Southampton Winter School on Bounded Rationality at the T.A. Pai Management Institute (AACSB-accredited, top 20 business school in India) in Manipal, India during January 2018.
- The CRR's Dr Itiel Dror gave invited presentations on a range of subjects related to cognitive aspects of criminal investigations at Houston Forensic Science (HFSC), Texas, the Taiwanese Judge Academy, the Taiwanese Criminal Investigation Bureau, the Taipei Bar Association, the Hong Kong Government Forensic Science Laboratory, Superior court judges, State of Massachusetts, the Japan Federation of Bar Associations and the Japanese Innocence Project at Harvard University Law School. The following invited talks were also delivered by Dr Dror:
 - Dror, I.E. (2018). Pulling Back the Curtain: Exploring Implicit Bias. Massachusetts Board of Bar Overseers, Boston.
 - Dror, I.E. (2018). Why smart people do stupid things: Biases in forensic decision making. Simon Fraser University, Vancouver, Canada.
 - Dror, I.E. (2018). Medical decision making: observations VS. Conclusions in medical assessments. University of California San Francisco Medical School (UCSF).
 - Dror, IE. (2018). Cognitive Underpinning of Human Decision Making. Queen Mary University of London.
 - Dror, IE. (2018). The missing link: The human element in forensic science. House of Lords Science and Technology Committee inquiry into forensic science.
 - Dror, I.E. (2018). Bias in Expert Decision Making. Middlesex/Boston District Attorney's Office. Middlesex Superior Courthouse, Boston.
 - Dror, I.E. (2018). The Terror of Error: Reducing Errors in Medical Decision Making and Increase Patient Safety. Grand Rounds at Monash Health Center Hospital. Australia,

	<ul style="list-style-type: none"> ○ Dror, I.E. (2018). The Art of Cognitive Neuroscience and Terror of Error. Grand Rounds at Townsville Hospital and Health Service. Australia, ○ Dror, I.E. (2018). Research in human cognition to the aid of the courtroom. Presentation to the Massachusetts Supreme Judicial Court Standing Committee on ID Evidence.
Papers, books and other REF-able outputs published in 2017-2018	CRR members had 49 papers accepted or published in international refereed journals, including seven papers in ABS 4* journals and 24 papers in ABS 3* journals. CRR members also delivered 11 conference papers, published one book, created a CRR Discussion Document and supervised 10 PhDs to completion.
PGR students:	33 PhD students
Details of Research Grants and Research Activities	<p>Funded Research:</p> <ul style="list-style-type: none"> • M. Brito and R. Marsh £8,500 (SMMI). ‘Pilot project in disaster management’ • M. Brito (£8,000,000 (Horizon 2020 BRIDGES project). Work package leader in reliability testing. The project has involved accelerated life testing plans for the propulsion, rudder, air ballast, moving mass and hydraulic ballasting system of underwater vehicles. The project will deliver two underwater vehicles (to operate at 2500 and 6000 metres depth). • I. Dawson and K. Katsikopoulos £4,900 (SBS). ‘Assessing the influence of message scheduling and altruistic framing on prosocial decision making’. • Chipulu, M., Bayer, S. and Brailsford, S. £25,000 (London Borough of Tower Hamlets) ‘Algorithms and System Dynamics for Decision and Policy Support of the Integrated Employment Service’. • Ma, T., Sung, M. and Johnson J.E.V. £400,000 (Shenzen Government, China and Audaque). ‘Building a Big Data supported financial services platform’.

- McGroarty, F., Johnson, J.E.V., Sung, M.C., O'Sullivan, P., McGee, R., Ma, T. and Urquart, A. **£247,000** (Seven Investment Management). 'Developing flexible portfolio optimisation models for strategic asset allocation'.
- Johnson J.E.V., McGroarty, F., Sung, M. McGee R., Ma, T., Cheah, J. **£270,000** (Seven Investment Management / ESRC (Impact Acceleration Award)). 'Developing an innovative, cloud-based risk management framework.'
- Mues, C. Higgs, M. So, M. **£142,000** (Innovate UK). Transfer and develop a unique analytics capability and provide a causal link between employee engagement and business success. Innovate UK.
- Sung, M.C., Johnson, J.E.V., Ma, T., Baesens, B., Florez Lopez, R, and Lessmann, S. Awarded **€30,000** by the Ministerio de Economía y Competitividad- Spanish National Research Council ' Collaboration, risk management and governance in SMEs: Drivers for competitiveness and international entrepreneurship'.
- Ma, T., Sung, M. and Johnson J.E.V., Lessmann, S., and Flores Lopez, R. **£296,000** [£150K (Audaque software and staff support), £120k (Audaque Big data computing infrastructure), £5k (Audaque travel/subsistence), £21k (ESRC IAA grant)] 'Effective risk management for Big Data-supported mobile finance'.
- Sung, M., McGroarty, F., Johnson, J.E.V., Ma, T., McGee, R., and Urquart, A. Awarded **£80,000** from Seven Investment Management for a project titled 'Developing and testing a risk tolerance questionnaire for investors'.
- McGroarty, F., Sung, M.C., Ma, T., Johnson, J.E.V., Awarded **£90,000** by Seven Investment Management: Risk Factor Model Portfolios for Retail Investors.
- Johnson, J.E.V., McGroarty, F., Sung, M.C., McGee, R., and Ma, T. **£266,000** (£166k jointly funded by Innovate UK, ESRC, EPSRC and Seven Investment Management (7IM) and £100k re: data/software and management support from 7IM: KTP 010262). Creating and embedding an innovative uncertainty control system for asset allocation decisions.

- Sung, M., Ma, T., Johnson, J.E.V. and Vaughan Williams, L. **£40,000** (Star Financial Systems). Managing uncertainty through sophisticated quantitative analysis of financial decisions.
- Sung, M., Ma, T., Sung, M. and Johnson, J.E.V. **£174,000** (Kx Systems). Kdb database platform, optimised for streaming, real time and historical Big data analytics.
- Ma, T., Sung, M. and Johnson, J.E.V. **£150,000** (EPSRC funded Southampton Data Science grant) to visit Audaque Ltd, "a world-leading firm in Big data quality" and develop research data and Big Data quality support for research collaboration.
- Ma T. **£23,000** (EPSRC Web Science Institute). "Intelligence blockchain-based fraudulent and risky behaviour prediction for digital asset applications".
- K. Katsikopoulos, J.Klein and S. Brailsford, **£4200** (SBS). 'Why decision makers might neglect evidence from quantitative models'.
- Lessmann, S. **€188,000** (Kreditech Holding SSL GmbH). 'Developing machine learning and AI models for credit risk analytics'.
- Ma T. **£90,300** (ESRC South Coast Doctorial Training Partnership). "Cyber-risk assessment on corporate privacy data exposure, firm's short-term/long-term reputation and operations cost optimization".
- Ma, T. **£120,000** (China Scholar Council). Machine-learning algorithms for global financial markets.
- Ma, T. **£90,300** (ESRC South Coast Doctorial Training Partnership) "Smart App-based individual behaviour analysis and robust risk optimisation."
- Ma, T. **£27,000** (Southampton University) "Human behaviour, social engineering of cyber risk management".
- Ma, T., Bektas T. **£174,000** (Huawei Ltd) Network resilience for SDN/NFV environment.

	<ul style="list-style-type: none"> • Ma, T. Sassone, V. O'Hara, K. Will, G. Stalla-Bourdil, S. £225,000 (GCHQ). Effective big data anonymisation. GCHQ. • Professor Ming-Chien Sung, Professor Johnnie Johnson, Professor Leighton Vaughan Williams, and Dr Tiejun Ma worked with the London-based financial services firm Star Financial Systems Ltd. on a project titled 'Managing uncertainty through sophisticated quantitative analysis of financial decisions'. • Professor Ming-Chien Sung, Professor Johnnie Johnson, Professor Frank McGroarty, Dr Richard McGee, Dr Andrew Urquhart and Dr Tiejun Ma worked with Seven Investment Management Ltd. (7IM) on a project titled 'Developing and testing a risk tolerance questionnaire for investors'. • Professor Ming-Chien Sung, Professor Johnnie Johnson, Professor Stefan Lessmann, Dr Raquel Lopez and Dr Tiejun Ma used funds from an ESRC Impact Acceleration Account (IAA) to collaborate with Audaque Ltd on a project titled 'Developing an innovative, cloud-based risk management framework'. • Professor Ming-Chien Sung, Professor Johnnie Johnson, Professor Frank McGroarty, Dr Richard McGee, Dr Jeremy Cheah and Dr Tiejun Ma used funds from an ESRC Impact Acceleration Account (IAA) to collaborate with Seven Investment Management Ltd. (7IM) on a project to enable investment management firms to optimize portfolio performance robust to future risk. • Professor Ming-Chien Sung, Professor Johnnie Johnson and Dr Tiejun Ma worked with Audaque Ltd. on a funded project titled 'Building a Big Data Supported Financial Services Platform'. • Professor Ming-Chien Sung, Professor Johnnie Johnson and Dr Tiejun Ma worked with Kx Systems on a funded project titled 'KDB database platform, optimised for streaming, real time and historical Big Data analytics.' • The CRR commenced a research project funded by the Higher Education Initiative Fund (HEIF) to quantify the risk of air pollution in port cities and to assess the impact of government and local policies on air pollution. This is a large cross-disciplinary research project that involves a collaboration with Southampton Marine and Maritime Institute (SMMI) and
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Southampton City Council. The Principle Investigator is Dr Mario Brito (CRR) and the Co-investigators are Professor George Attard, Dr Matt Loxham, Professor Mikis Tsimplis and Mr Gareth Giles.

- Marshall, A. Faculty VC PGR scholarship for a cross-school project on “Managing flood risk in the UK”. Funding a PhD student for three years (additional support from the British Law Association and the Institute for Risk Management).

Research-related activities:

- The CRR commenced a research collaboration with Munich Re Insurance, one of the world’s largest insurance and re-insurance firms. The collaborators, led by Dr Alasdair Marshall, will work to extract risk information from US Securities and Exchange Commission 10-K risk reports. Using this data, the team will design a new risk classification architecture, or “risk matrix”.
- The CRR’s Matthew Leitch continued to support the British Standards Institution’s standardization of risk management via representation on the RM/1 (risk management) committee. Matthew Leitch was also a panellist at a “The dark side of the chain? Governing and Auditing Mutual Distributed Ledger (aka blockchain) Systems” conference, London, sponsored by the Chartered Insurance Institute.
- The CRR has recently established a staff exchange scheme with Humboldt University, Berlin.
- The CRR’s Andrew Urquhart was appointed an Associate Editor for the European Journal of Finance [ABS 3*], International Review of Financial Analysis [ABS 3*] and Research in International Business and Finance [ABS 2*].
- Andrew Urquhart was awarded the best paper award at the Cryptocurrency Research Conference, Cambridge, UK for the paper “Should Investors Include Bitcoin in Their Portfolios? A Portfolio Theory Approach”.
- Andrew Urquhart is co-editing a special issue on cryptocurrencies in Research in International Business and Finance.

- Dr Konstantinos Katsikopoulos signed a book contract with MIT Press. The book, titled “Classification in the Wild: The Art of Transparent Decision Making”, will be co-authored with Özgür Simsek (Bath University), Marcus Buckmann (Bank of England) and Gerd Gigerenzer (Harding Center for Risk Literacy).
- Dr Konstantinos Katsikopoulos will co-edit a special issue on “Healthcare Behavioural OR” for the Journal of the Operational Research Society. The other co-editors are Sally Brailsford (CORMSIS), Mike Carter (University of Toronto) and Paul Harper (Cardiff University). The special issue is due to be published in 2019.
- Konstantinos Katsikopoulos was elected to be the Academic Chair of The Operational Research (OR) Society’s Special Interest Group in Behavioural OR, starting from October 2018 [Industry Chair will be Jon Malpass of British Telecom].
- Konstantinos Katsikopoulos delivered a keynote lecture at the ORBIT [Behavioural Aspects of Operational Research Interventions in Transformational Projects] Workshop organised by the Warwick Business School at its Shard campus.
- For the period 2017-2020, Dr Tiejun Ma has been elected as a leadership committee member for the Risk Management Research and Thought Leadership Committee, Institute of Faculty of Actuaries (IFoA) UK.
- In 2017, Dr Tiejun Ma recently won the Lenovo/Supercomputing Conference AI Innovation Challenge (he was one of only two UK winners in UK).
- A recent LinkedIn article highlighted two professors from the CRR as ‘risk innovators’ who have made some of the most important and original contributions to the field of risk management in recent decades. The article, which was written by Warren Black (Complexity & Risk Specialist, Queensland University of Technology (QUT), Brisbane, Australia), highlighted a small number of risk management “Originals” that have dared to think differently and, subsequently, have substantially improved the field of risk management. Some of Black’s Originals include Daniel Kahneman and Amos Tversky (Nobel Prize winners for their work on judgmental biases in decision

making under risk) and Stanley McChrystal (leader of the joint task force in Iraq during the mid-1990's). Notably, Black gave special mention to the contributions that Professors Chris Chapman and Steve Ward of the CRR have made to the field of risk management. Specifically, Black highlighted how Chapman and Ward pioneered the merits of using "Uncertainty Management" over conventional risk management and have propelled the view that a fundamental flaw of the conventional risk management approach is an over dependence on "predicting" risks rather than recognising that the uncertainty involved means key sources of opportunities and risks will not be identified (i.e., unknown-unknowns).

- Dr Tiejun Ma was recently invited to deliver a keynote talk and host a panel discussion with the Chief FinTech Office and Chief Data Science Office of Singapore Monetary Authority at the 7th SKBI Annual Conference hosted by the Sim Kee Boon Institute for Financial Economics (SKBI) at Singapore Management University (SMU).
- The CRR's Christophe Mues was awarded an ESRC SCDFP fully funded PhD grants for the project "Improving SME Credit Risk Management with Advanced Predictive Analytics".
- The CRR's Max Chipulu was invited to guest edit a special issue on 'competence modelling' for Project Management Journal (Impact Factor 4.034).
- The CRR's Ian Dawson became a Chartered Psychologist of the British Psychological Society.
- The CRR recently developed a strategic relationship with the 'Association for Insurance and Risk Managers in Industry and Commerce' (AIRMIC), one of the UK's leading risk management professional associations. AIRMIC has over 1,100 members that include FTSE-listed companies. AIRMIC seeks to advance the risk and insurance industry by supporting professional growth, promoting risk management and insurance on the corporate agenda and providing thought leadership. The strategic partnership aims to enhance the employment prospects of students studying risk at in the University of Southampton. This resulted in AIRMIC offering some risk management students at Southampton University the chance to attend some prestigious AIRMIC training and networking events free of charge (e.g., this

	<p>resulted in several students attending the successful AIRMIC Fast Track Forum in London).</p> <ul style="list-style-type: none"> • The CRR’s Bart Baesens won the best paper award published in the European Journal of Operational Research (ABS 4*) in the theory and methodology category. The title of the paper is “Benchmarking state-of-the-art classification algorithms for credit scoring: an update of research”, co-written with Stefan Lessmann, Hsin-Vonn Seow and Lyn Thomas. • The CRR’s Simon Wolfe was invited to join the scientific committee for the 10th Portuguese Finance Network Conference 2 - 4 July 2018 ISCTE-IUL, Portugal.
<p>Any consultancy and enterprise contracts not included in the attached list</p>	
<p>Short courses or other forms of CPD developed and delivered</p>	<ul style="list-style-type: none"> • The following workshops and training sessions were delivered by Dr Itiel Dror: <ul style="list-style-type: none"> ○ Two 2-day workshop on 'Cognitive Factors in Forensic Decision Making', at Gloucestershire Constabulary. ○ A 2-day workshop on 'Cognitive Factors in Forensic Decision Making', at Harris County Institute of Forensic Sciences, Texas. ○ Two 2-day workshop on 'Cognitive and Human Factors in Forensic Decision Making', for State of California Department of Justice, Los Angeles, ○ A Masterclass on 'Why Experts Make Mistakes', at the British Association in Forensic Medicine. ○ A 2-day workshop on 'Cognitive Factors in Forensic Decision Making', at the Division of Identification and Forensic Science at the Israeli Police HQ. ○ Six 2-day workshops on 'Cognitive Factors in Forensic Decision Making', at LASD, Los Angeles,

	<ul style="list-style-type: none"> ○ Three 1-day workshops on 'Cognitive Factors in Forensic Decision Making', at the Massachusetts State Police (MSP) Crime Lab. ○ A workshop on for Police Chiefs and Detectives on "Enhancing Investigative Decision Making" at Boston ○ A 2-day workshop on 'Cognitive Factors in Forensic Decision Making', at Australian and New Zealand Forensic Science Society (ANZFSS). Canberra, Australia. ○ A 1-day workshop on 'Error and Cognitive Bias in Medical Healthcare Decision Making', at Monash Health Center Hospital and the Faculty of Medicine, Nursing & Health Sciences Monash University, Australia. ○ A 1-day Masterclass on 'A Cognitive Neuroscientific Perspective on Improving Patient Care and Safety', at the Royal Australasian College of Medical Administrators (RACMA). Melbourne. ○ A 2-day workshop on 'Cognitive Factors in Forensic Decision Making', at East Midlands Special Operations Unit (for the police forces of Derbyshire, Lincolnshire, Nottinghamshire, Leicestershire and Northamptonshire constabularies). ● The CRR's Professor Stefan Lessmann delivered a one-day workshop on Profit Analytics at Barclay Card, Hamburg. ● Professor Stefan Lessmann delivered a two-day workshop on Fraud Detection Using Supervised, Unsupervised and Social Network Analytics at SAS, Dubai. ● Professor Stefan Lessmann delivered a two-day workshop on Fraud Detection Using Supervised, Unsupervised and Social Network Analytics at ING, Berlin.
<p>A brief "business plan" outlining planned activity and any developments for the next three years</p>	<ul style="list-style-type: none"> ● The Centre for Risk Research (CRR) is a multi-disciplinary team of academics who have developed an international reputation for excellence in the related fields of decision-making, risk analysis, risk management and risk taking research. In these areas, the CRR has a record of accomplishment in successful research grant applications, publishing papers in 3* and 4* international journals and producing leading research text

books. The CRR offers the University an important competitive advantage, as there are no comparable risk-related research centres in the country embedded in Russell group universities which have been established for as long or which offer the combination of quantitative and qualitative risk skills for which we have an international reputation.

- We believe that a move to substantially increase our research reputation, by leveraging our current international standing in the risk and decision-making areas, can significantly improve our long-term aims for growth whilst reducing our strategic risks. (However, the initiatives indicated below, are only possible with far greater WAM hour support from the School):
 - Development of links with major companies in China, including Audaque, Wanxiang Ltd, and the PingAn group, exploring opportunities to secure funding for post-doc researchers to collaborate on projects with CRR.
 - Enhance website in order to attract more external research income and more applications for risk-related PG programmes and PhDs.
 - Develop and promote the formal staff exchange programme with Humboldt University, Berlin.
 - Develop relationship with University of Tasmania, Australian Marine Centre, to develop and share knowledge on Autonomous Underwater Vehicle risk analysis.
 - Development of links with city-based organisations, to develop a range of finance based funded research projects
 - Establishing a network of formal links with universities in Spain, Germany, mainland China, Taiwan, Macao, Hong Kong, Finland to establish a range of research collaborations.
 - Developing formal links with Asia Pacific Association for Gambling Studies to secure future research collaborations and funded research projects
 - Establishing long-term collaboration with GCHQ on cyber-security projects
 - Maintaining and developing relationships with a number of existing strategic partners (academic and commerce/industry) in order to explore future funding opportunities

	<ul style="list-style-type: none"> ○ Developing relationships with commercial partners to facilitate career opportunities for risk students (MSc and PhD).
<p>Details of any funding requested for academic year 2017-18</p>	<p>The main need of the CRR is for substantial additional hours to support the leadership and management of the CRR and to take forward the various initiatives indicated above. These will be impossible without such support. A minimum of 750 WAM hours is required, but to fully support all the proposed initiatives the CRR would require the equivalent of a full time member of staff (1525 WAM hrs). It is estimated that the provision of 1525 WAM hours would become self-funding within 3 years.</p> <p>The CRR also needs funding to facilitate liaison with existing and future strategic partners and to visit potential sponsors of projects.</p>