

**Faculty of Business, Law and Art – Annual Reports for Research Centres (Calendar year 2017)**

Name of Centre	<b>Centre for Risk Research</b>
URL of its website	<a href="http://www.southampton.ac.uk/risk">http://www.southampton.ac.uk/risk</a>
<b>For Calendar year 2016-17</b>	
Names and schools of all current members of the Centre	<p><b>Professors</b></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><b>Other key academic staff</b></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 Richard McGee, 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 &amp; Computer Sciences, Southampton</p> <p><b>Research Associates</b></p> <p>Dr Peter Fraser-Mackenzie, Southampton Business School  Dr David McDonald, Southampton Business School  Mr Nikoloas Kililis, Southampton Business School</p>

	<p>Chi Wan Cheung , Southampton Business School</p> <p><b>External Members</b></p> <p>Prof. Stefan Lessmann, Humboldt University Berlin</p> <p>Prof. William Benter, Visiting Professor, Southampton Business School</p> <p>Dr Itiel Dror, Cognitive Consultants International</p> <p>Dr Raquel Florez-Lopez, Pablo Olavide University of Seville</p> <p>Mr Garry Honey, Visiting Senior Fellow, Southampton Business School</p> <p>Mr Matthew Leitch, Visiting Lecturer, Southampton Business School</p> <p>Dr Andrew Grant, School of Finance, University of Sydney</p> <p>Dr Keith Smith, Risk &amp; Decision Making Consultant</p> <p>* = new Centre member</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</p> <p>Dr David McDonald, EPSRC Research Fellow</p> <p>Dr Jason Wang, Research Fellow</p> <p>Nikolaos Kililis, Research Fellow</p> <p>Chi Wan Cheang*, KTP Associate</p>
<p>New academic appointments</p>	<p>Dr Rudabeh Meskarian, Lecturer in Operational Research &amp; Management Science</p> <p>Dr Stratos Ramoglou, Associate Professor in Strategy and Innovation</p> <p>Chi Wan Cheang, KTP Associate</p>
<p><b>Very brief</b> details of any seminars, meetings, conferences or workshops explicitly badged as Centre events</p>	<ul style="list-style-type: none"> <li>• The Centre for Risk Research 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).</li> <li>• The Centre for Risk Research (CRR) 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, with 1,100 members including FTSE-listed companies, and 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 significantly 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 resulted in several students attending the successful Airmic Fast Track Forum in London).</li> <li>• The Centre for Risk Research played a leading role in organising, chairing and facilitating the second China-EU Big Data and Finance Symposium in Shenzen, China, in 2017: attracted over 100 delegates.</li> </ul>

- The Centre for Risk Research hosted meetings with a variety of organisations, aimed exploring opportunities for research collaborations, initiatives to improve employment prospects for the School's graduates and educational enhancement activities: The Asia Pacific Association for Gambling Studies (APAGS), Association for Insurance and Risk Managers in Industry and Commerce' (AIRMIC), Seven Investment Management, Z/Yen, Star Financial Systems, the UK Foreign & Commonwealth Office, 4Most Europe and Audaque Ltd.
- Professor Chris Chapman delivered a Southampton Business School Evening Seminar to local business delegates, titled: 'Which opportunities and risks matter the most
- 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 Centre for Risk Research developed a close relationship with the University of Tasmania (UTAS) Australian Marine Centre (AMC) at Launceston, to share knowledge on Autonomous Underwater Vehicle risk analysis and management and establish collaborations with academics at UTAS. This was cemented by a visit to UTAS by Dr Mario Brito in August where he conducted an expert judgment elicitation to test the importance of framing in AUV risk analysis, and gave two invited talks.
- The Centre for Risk Research continued to support the British Standards Institution' standardization of risk management via representation on the RM/1 (risk management) committee.
- The Centre for Risk Research established a staff exchange scheme with Humboldt University, Berlin.
- Dr Tiejun Ma hosted a panel discussion at the 7th SKBI Annual Conference on "Advances in Data Science and Implications for Business"; hosted by the Sim Kee Boon Institute for Financial Economics (SKBI) at Singapore Management University (SMU). The conference attracted 340 attendees from finance, insurance, technology and entrepreneurship.
- Matthew Leitch was a panellist at a "The dark side of the chain? Governing and Auditing Mutual Distributed Ledger (aka blockchain) System conference, in London sponsored by the Chartered Insurance Institute.
- Matthew Leitch chaired and presented a session on "Directing risk management in organizations" at a meeting of the Control Risk Self Assessment Forum, in London.
- Tiejun Ma elected as a leadership member for the Risk Management Research and Thought Leadership Committee, Institute of Faculty of Actuaries.
- Itiel Dror gave invited presentations on a range of subjects related to cognitive aspects of criminal investigation Houston Forensic Science (HFSC), Texas, the Taiwanese Judge Academy, the Taiwanese Criminal Investigation Bureau, the Taipei Bar Association, the Hong Kong Government Forensic Science

	<p>Laboratory, Superior court judges, State of Massachusetts, the Japan Federation of Bar Associations and the Japanese Innocence Project, Harvard University Law School.</p> <ul style="list-style-type: none"> <li>• Itiel Dror gave invited presentation on 'Risk perception and management: Improving decision making in the real world' at Willmott Dixon Holdings.</li> <li>• Tiejun Ma delivered an invited presentation on "Text, herding and sentiment at the Cambridge-INET Institute, University of Cambridge.</li> <li>• Itiel Dror gave invited presentation on 'The science behind changing the way we think and do things' at Willmott Dixon Holdings Product Summit meeting</li> <li>• Centre for Risk Research (CRR) staff were highlighted as risk innovators who have made some of the most important and original contributions to the field of risk management in recent decades by Warren Black who examined "Who are the Originals of risk management?", highlighted Chapman and Ward as pioneers of 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.</li> </ul>
<p>Papers, books and other REF-able outputs published in 2017</p>	<p>Outputs by CRR members: 60 papers accepted or published in international refereed journals, 36 conference papers, 2 books, 1 book chapter, 2 working papers.</p> <p>In addition, the CRR produced the following reports:</p> <ul style="list-style-type: none"> <li>• "Auditing Mutual Distributed Ledgers (aka Blockchains): A Foray into Distributed Governance &amp; Forensics" Matthew Leitch and Michael Mainelli (report published by Long Finance).</li> <li>• "Risk Intelligence"</li> <li>•</li> </ul> <p>The Centre for Risk Research continued to engage in debate, concerning two of its online publications:</p> <ul style="list-style-type: none"> <li>- A risk management guidance document titled 'Directing Risk Management in Organizations: Guidance from the Centre for Risk Research';</li> <li>- 'Why risk cultures need prudence'</li> </ul>
<p>PGR students:</p>	<p>45</p>
<p>Details of Research Grants and Research Activities</p>	<ul style="list-style-type: none"> <li>• M. Brito and R. Marsh <b>£8500</b> (SMMI). 'Pilot project in disaster management'</li> </ul>

	<ul style="list-style-type: none"> <li>• M. Brito (<b>£8,000,000</b> (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).</li> <li>• M. Brito £5100 (SMMI). ‘Scoping study exploring risks of air pollution in Southampton.</li> <li>• I. Dawson and K. Katsikopoulos <b>£4900</b> (SBS). ‘Assessing the influence of message scheduling and altruistic framing on prosocial decision making’.</li> <li>• Ma, T., Sung, M. and Johnson J.E.V. <b>£400,000</b> (Shenzen Government, China and Audaque). ‘Building a Big Data supported financial services platform’.</li> <li>• McGroarty, F., Johnson, J.E.V., Sung, M.C., O’Sullivan, P., McGee, R., Ma, T. and Urquart, A. <b>£247,000</b> (Seven Investment Management). ‘Developing flexible portfolio optimisation models for strategic asset allocation’.</li> <li>• Johnson J.E.V., McGroarty, F., Sung, M. McGee R., Ma, T., Cheah, J. <b>£270,000</b> (Seven Investment Management / ESRC (Impact Acceleration Award)). ‘Developing an innovative, cloud-based risk management framework.’</li> <li>• Mues, C. Higgs, M. So, M. <b>£142,000</b> (Innovate UK). Transfer and develop a unique analytics capability and provide a causal link between employee engagement and business success. Innovate UK.</li> <li>• Sung, M.C., Johnson, J.E.V., Ma, T., Baesens, B., Florez Lopez, R, and Lessmann, S. Awarded <b>€30,000</b> by the Ministerio de Economia y Competitividad- Spanish National Research Council ‘ Collaboration, risk management and governance in SMEs: Drivers for competitiveness and international entrepreneurship’.</li> <li>• Ma, T., Sung, M. and Johnson J.E.V., Lessmann, S., and Flores Lopez, R. <b>£296,000</b> [£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’.</li> <li>• Sung, M., McGroarty, F., Johnson, J.E.V., Ma, T., McGee, R., and Urquart, A. Awarded <b>£80,000</b> from Seven Investment Management for a project titled ‘Developing and testing a risk tolerance questionnaire for investors’.</li> <li>• McGroarty, F., Sung, M.C., Ma, T., Johnson, J.E.V., Awarded <b>£90,000</b> by Seven Investment Management: Risk Factor Model Portfolios for Retail Investors</li> <li>• Johnson, J.E.V., McGroarty, F., Sung, M.C., McGee, R., and Ma, T. <b>£266,000</b> (£166k jointly funded by Innovate UK, ESRC, EPSRC and Seven Investment Management (7IM) and £100k re: data/software and management support from 7IM: KTP</li> </ul>
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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) "SmartApp-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.
- 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).
- M. Brito and I. Dawson met with Jane Rumble, Head of the FCO's Polar Regions Department, leading to a bid to ESRC for £370,000 (currently under review by the university's ESRC demand management panel).
- Ma, T. Sassone, V. O'Hara, K. Will, G. Stalla-Bourdil, S. **£225,000** (GCHQ). Effective big data anonymisation. GCHQ.
- Additional non-funded research activities:
  - M.Leitch and M. Mainelli explored an agent-based simulation of a hypothetical cryptocurrency to explore the potential of simulation in the design of future

	<p>cryptocurrencies. Since most such currencies fail, and even those that are still operating have unstable exchange rates, this is something that is urgently needed. We have two papers about this in the pipeline but nothing came out during 2017. Resulted in two papers (to be submitted).</p> <ul style="list-style-type: none"> <li>▪ M.Leitch worked with Z/Yen to apply machine learning methods to analyse member retention efforts for one of the larger public sector unions.</li> <li>▪ Tiejun Ma led a £10m consortium bid on GCRF Interdisciplinary Research Hubs to address 'Intractable challenges faced by developing countries'. The bid involved, research leaders from Mathematics, ECS, WSI, CSA, Social Science, ESRC Administrative Data Research Centre, ESRC Population Change Research Centre, University HPC and Data Intensive Research Group/FEE, and partners such as Government organisations, Industry firms, and academic universities in ODA countries. The bid was unsuccessful.</li> </ul>
Any consultancy and enterprise contracts not included in the attached list	<ul style="list-style-type: none"> <li>▪ Expert witness on confirmation bias, at Hampden County Superior Court in MA, in the murder case of Commonwealth vs. Honsch (I. Dror).</li> </ul>
Short courses or other forms of CPD developed and delivered	<ul style="list-style-type: none"> <li>• 3-day Advanced Training Programme Master Class, International Project Management Association (C. B Chapman)</li> <li>• Two 3-day seminars on Credit Risk modelling, SAS Turkey (S.Lessmann)</li> <li>• 2-day seminar on Advanced analytics in a big data world, SAS Turkey (S.Lessmann)</li> <li>• 3-day seminar on Credit Risk modelling, SAS France (S.Lessmann)</li> <li>• 3-day seminar on Credit Risk modelling, SAS Austria (S.Lessmann)</li> <li>• 3-day seminar on Credit Risk modelling, SAS Dublin (S.Lessmann)</li> <li>• Five, 2-day workshops on Cognitive and Human Factors in Forensic Decision Making, for State of California Department of Justice, the Taiwanese Criminal Investigation Bureau (CIB), Los Angeles Police Department (I. Dror).</li> <li>• 2-day workshop on 'Cognitive Factors in Crime Scene Investigations (CSI) Decision Making', at Houston Center for Forensic Science (I. Dror).</li> <li>• 1-day workshop on 'Cognitive Factors and Pitfalls in Medical Decision Making', at the Royal Australasian College of Medical Administrators (I. Dror).</li> <li>• 1-day workshop on 'Cognitive Bias in forensic DNA', Association of Forensic DNA Analysts and Administrators, Texas</li> <li>• 1-day workshop on 'Why Smart People Do Stupid Things: Increasing Patient Care and Safety', at the Health Services Authority (HAS), Cayman Islands (I. Dror).</li> </ul>

	<ul style="list-style-type: none"> <li>• 1-day workshop on 'Expert Evidence: Increasing Objectivity and Impartiality' at the Prosecutor Office, Ministry of Justice, Taiwan (I. Dror).</li> <li>• 1-day workshop on 'What Cognitive Neuroscience Can Teach Us About Investigative and Legal Decision Making' at the Judges Academy, Taiwan (I. Dror).</li> </ul>
<p>A brief “business plan” outlining planned activity and any developments for the next three years</p>	<ul style="list-style-type: none"> <li>• 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 we have a track record in successful research grant applications, papers in 3* and 4* international journals and in 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 ‘hard’ and ‘soft’ risk skills for which we have an international reputation.</li> <li>• 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):</li> <li>• 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.</li> <li>• Finalise editing of special issue of the International Journal of Forecasting on ‘Prediction Markets’</li> <li>• Enhance website, with current projects being undertaken in CRR, in order to attract industry research income.</li> <li>• Develop and promote the formal staff exchange programme with Humboldt University, Berlin</li> <li>• Develop relationship with University of Tasmania, Australian Marine Centre, to develop and share knowledge on Autonomous Underwater Vehicle risk analysis.</li> <li>• Development of links with city-based organisations, to develop a range of finance based funded research projects</li> <li>• 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.</li> <li>• Developing formal links with Asia Pacific Association for Gambling Studies to secure future research collaborations and funded research projects</li> <li>• Developing links with the ‘Association for Insurance and Risk Managers in Industry and Commerce’ (AIRMIC), with the aim of</li> </ul>



	<p>securing sponsorship for students and access to leading commercial risk managers</p> <ul style="list-style-type: none"> <li>• Developing a long-term collaboration with Huawei Ltd., with the aim of securing future research funding.</li> <li>• Establishing long-term collaboration with GCHQ on cyber-security projects</li> <li>• Support a risk alumni network via LinkedIn pages on the CRR website.</li> <li>• Maintaining and developing relationships with a number of existing strategic partners (academic and commerce/industry) in order to explore future funding opportunities</li> <li>• Developing relationships with commercial partners to facilitate career opportunities for risk students (MSc and PhD).</li> </ul>
<p>Details of any funding requested for academic year 2017-18</p>	<p>Our main need 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 properly support all the initiatives we propose would require the equivalent of a full time member of staff (1525 WAM hrs). We estimate that provision of 1525 WAM hours, would become self-funding within 3 years.</p> <p>We also need funding to facilitate liaison with existing and future strategic partners and to visit potential sponsors of projects.</p>