University of
Southampton

IMPACTFUL RESEARCH WORLDWIDE

Faculty of Social Sciences

Contents

Improving the asylum system by making it more trauma-sensitive for vulnerable people

Navigating the UK asylum system can negatively impact the mental health of young people seeking asylum. However, unaccompanied minors rarely have their voice heard.

> **The asylum process itself can be mentally draining. The constant fear of deportation and the inability to plan for the future further heighten the emotional burden.**
>
> A workshop participant

The project 'Towards A Trauma-Informed Asylum Process and Services' worked with young people seeking asylum to produce a set of trauma-informed practice (TIP) guidelines.

Implementing TIP in the asylum system can have long-term benefits for young people seeking asylum and working professionals.

It can safeguard young people's welfare and protect their mental health. For the professionals in the system, it can enhance the quality of their work and decision-making processes.

Understanding the asylum process

During two workshops, young people seeking asylum shared their traumatic experiences of the UK asylum system. Together with the professionals working with them, they identified the following distressing factors:

– lack of knowledge about their rights and access to support

– legal complexities of the asylum system

– language, cultural and social barriers

> **Trauma affects how you tell your story: that's used against you [...] Re-living your trauma by re-telling your story: [Home Office officials] need to standardise the interview in line with human rights provisions. [Home Office caseworkers] need to understand trauma and storytelling.**
>
> A workshop participant

Learning from the findings

The report and guidelines emphasised the need of building trust between asylum claimants and professionals in the system and encouraging compassionate engagement throughout the asylum process.

– All organisations working with asylum-seeking people should embed TIP training

– It is important to effectively monitor and evaluate the implementation of TIP

– The lived experience of people seeking asylum should shape the content and delivery of TIP training

– Organisational culture must change to allow for effective implementation of TIP

The next step

The research team will share the findings and **the report** with key groups, such as:

– refugee charities

– legal and mental health professionals

– Home Office staff involved in the asylum decision-making processes

The team will run presentations and workshops. This will promote the take-up and application of the trauma-informed practice guidelines for the asylum process.

The research team also plan to run dissemination and training activities with the partner organisations and the young people who worked on the project.

Detecting Hot Spots of Extreme Poverty Using Machine Learning and Geospatial Data

University of Southampton academics have teamed up with researchers at the Universities of Cornell, Copenhagen, Oxford Policy Management and the World Bank to develop new methods, data and tools that governments and decision makers can use to support the world's poorest areas.

The consortium's research focuses on the following broad themes:

1. **Who is living in extreme poverty, where are they living, and how is their situation evolving.**

2. **What drives extreme poverty.**

3. **How can we end extreme poverty.**

Professor Nikos Tzavidis, Dr Angela Luna Hernandez, Luciano Perfetti Villa, (Social Statistics and Demography and Southampton Statistical Sciences Research Institute), and Christopher T Lloyd (WorldPop) develop novel poverty mapping methods and open-source software to detect extreme poverty hot spots at low spatial scales. With funding from the UK Foreign, Commonwealth & Development Office, and the ESRC, the research focuses on eight priority countries across Africa, South and South-East Asia: Ethiopia, Madagascar, Mozambique, Tanzania, Bangladesh, India, Nigeria, and Myanmar.

Machine learning methods for poverty mapping

Poverty mapping typically relies on linear-type statistical models. In our research we critically explore the use of machine learning algorithms to predict poverty. By doing so, we aim at improving predictive performance by (a) taking advantage of possibly complex relationships in large datasets, and (b) being robust to model misspecification. In collaboration with the World Bank, we apply novel statistical learning methods to real data to aid the Bank's poverty assessments in focus countries.

> **"Our research has been applied to real data from Mozambique to inform the World Bank's poverty assessment work in the country."**
>
> Professor Nikos Tzavidis

Geospatial data and open-source software for poverty mapping

Statistical estimation frequently relies on population-level data collected, for example, through population censuses. Censuses are, however, conducted infrequently or not at all in parts of the world impacted by conflict and humanitarian crises. This hinders the use of census data for statistical purposes. The Southampton team investigates how to harness, integrate and use publicly accessible remote sensing data as an alternative source to census data in poverty mapping applications. In collaboration with the World Bank, we work on developing open-source software to aid the use of methods and training. Jointly with the UK Office for National Statistics we transfer our research findings to the UK context. We evaluate the use of geospatial data alongside data from the UK Family Resources Survey to estimate income deprivation in Middle Super Output Areas and Local Authority Districts in the UK.

> **"In collaboration with the World Bank, we use geospatial data to aid the Bank's work in five countries in Sahel: Burkina Faso, Chad, Guinea, Mali, and Niger. Our work informs the discussion about uses of freely accessible large data sources in the production of official statistics."**
>
> Professor Nikos Tzavidis, Dr Angela Luna Hernandez, and Luciano Perfetti Villa

Older People's Care Networks in Indonesia

In the Global South, care in old age is overwhelmingly a family responsibility. Yet declining family sizes, migration, competitive labour markets, and rising inequalities make family care difficult. Older people's care needs are increasingly complex, combining chronic illnesses, disabilities, and cognitive decline. This raises a central question for international social policy:

How can acceptable care for older people be developed without creating unsustainable or unfair burdens on those providing the care?

This research focusing on Indonesia, the world's fourth largest population, is timely because the World Health Organization (2016) has called on developing countries to implement **sustainable long-term care systems.** In an ethnically diverse and decentralised nation like Indonesia, this means understanding how different family systems organise care, what local healthcare exists, and what civil society actors can be brought into the delivery of care. This collaborative research, funded by UKRI and led by **Dr Elisabeth Schröder-Butterfill**, integrated researchers from the Universities of Southampton, Oxford, and Loughborough in the UK and Atma Jaya Catholic University in Indonesia. A team of seven anthropologists conducted participant observation research in five disparate communities across Indonesia to generate in-depth accounts of older people's care needs and care arrangements, and to document where and why gaps in care provision emerge.

The research found that better off, large families develop collaborative care networks, for example by taking turns or having a division of labour for physical care, companionship, financial support and help with medical access. In impoverished families care often falls on one person, who may be juggling work and care and suffering from poor health. Yet overcoming cultural barriers, which resist outside help as interfering and shameful, is difficult.

By observing the role of community healthcare volunteers (kader), the research identified a route into making care more collaborative and involving local communities to support family carers. Volunteers are recruited locally, they know older people's situations, are trusted and approachable. They help run monthly community clinics for older people, yet these are not accessible for house-bound older people. Indeed, most care dependent older Indonesians no longer use health services due to transport and cost barriers. In collaboration with an Indonesian NGO, *Indonesia Ramah Lansia* (Age-friendly Indonesia), the team developed a **small pilot intervention** to deliver home visits by trained volunteers to older house-bound people. This revealed high motivation by volunteers, who valued the training they received, and appreciation from older people and their carers, who enjoyed receiving health checks, health advice, and companionship. Assistance from volunteers with care tasks is still rejected. However, the research shows that bringing volunteers into the homes of care dependent people is a first step towards socialising outside help, and it encourages older people's continued use of healthcare. The next steps are to convince more local communities to trial home visits, to collate training materials, and convince local governments to allocate funding from social welfare budgets. A short film visualising the benefits and feasibility of home visit programmes is helping to promote the idea across Indonesia. (See **Community Volunteer Home Visits for Older People in Yogyakarta (Indonesia) (youtube.com)**)

"Home visits are important … first, as a volunteer's contribution to older people, especially bedridden elders. Second, as an effort to strengthen families who care for older bedridden members. Third, for the older people themselves, because bedridden older people cannot go to [monthly health clinics], so they need to be cared for, asked questions, so that their quality of life improves.".

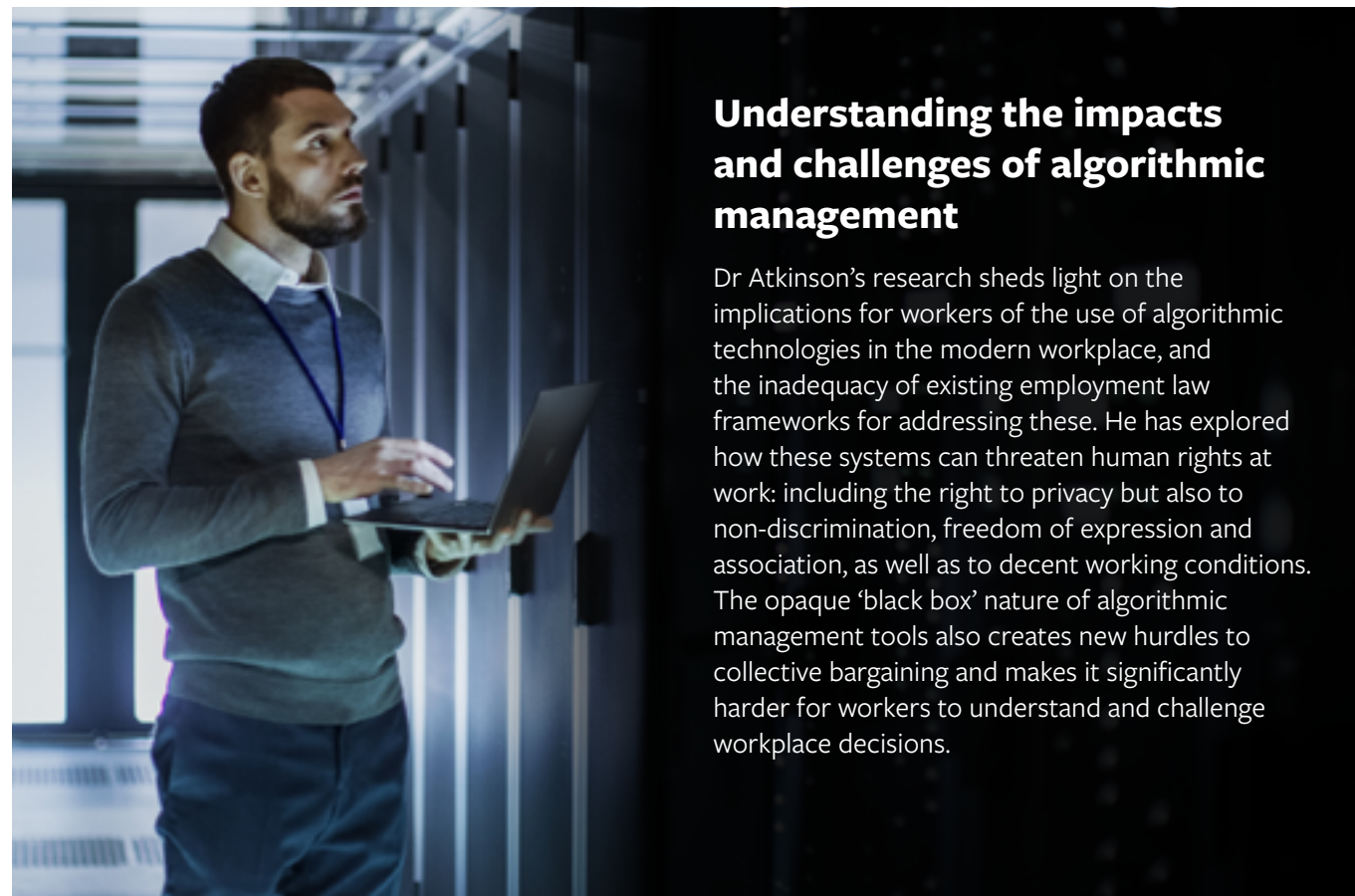Quote from Executive Director of Indonesia Ramah Lansia (IRL):

Algorithmic Management and Workers' Rights

Digital technologies have revolutionised the way we work in the last 30 years, and now they are rapidly changing the way that we are managed at work.

Artificial intelligence (AI) and data-driven algorithms are increasingly now being used to automate or augment the recruitment, management, evaluation, and even

dismissal of workers – in the platform economy and beyond. **Dr. Joe Atkinson's** research in the University of Southampton School of Law is at the forefront of understanding and addressing the challenges posed by these 'algorithmic management' practices. Influenced by his time working in Parliament before academia, he aims for his work to have real world impact by shaping policy discussions and legal reforms to protect workers' rights in the age of AI.

Understanding the impacts and challenges of algorithmic management

Dr Atkinson's research sheds light on the implications for workers of the use of algorithmic technologies in the modern workplace, and the inadequacy of existing employment law frameworks for addressing these. He has explored how these systems can threaten human rights at work: including the right to privacy but also to non-discrimination, freedom of expression and association, as well as to decent working conditions. The opaque 'black box' nature of algorithmic management tools also creates new hurdles to collective bargaining and makes it significantly harder for workers to understand and challenge workplace decisions.

A new generation of rights at work

Although several existing legal frameworks constrain how algorithmic systems can be used in the workplace, including data protection law, these are limited in scope or offer only weak safeguards for workers. In light of these problems, and building on his academic work, Dr Atkinson published a co-authored report in 2024 with the Institute of Employment Rights, a leading employment law think tank, titled 'Algorithmic Management and a New Generation of Rights at Work'. The report calls for:

- New rights for workers to information about monitoring and algorithmic management systems affecting their work and legal protections against the potential harms of these tools.

- Bans on some forms of 'automatically unfair' uses of technology.

- The establishment of mandatory 'workplace technology representatives' who must be consulted on the use of new technologies.

- The inclusion of algorithmic management within collective bargaining frameworks to give workers an effective voice on the use of these tools.

- The introduction of an audit and licencing regime to ensure that algorithmic management systems are safe and respect workers' rights before they can be marketed in the UK.

Shaping the future of work

Dr Atkinson aims for his research to influence policy and help make our employment laws fit for the age of AI. To achieve this, he has undertaken a range of public engagement and impact activities, including:

- Holding a roundtable with civil servants and trade union leaders to discuss the challenges of protecting workers' rights in the age of AI

- Giving expert evidence to a UN Working Group highlighting the potential threats of AI to the realisation of social rights.

- Collaborating with the Open Europe Dialogue think tank to help develop an innovative regulatory sandbox proposal for testing workplace AI systems.

- Submitting evidence to Parliamentary Committees and Government consultations.

He has also presented his work at various academic and public events, advocating for stronger regulations of digital monitoring and algorithmic management to be included within the Government's planned "Employment Rights Bill". He continues to work on these topics, and engage with policymakers and key stakeholders to make the case for legal reforms in this area.

Improving the Private Rented Sector in Southampton and beyond

Southampton's private rented sector (PRS) has more than doubled in size over the last 20 years, and it now houses roughly a third of all the city's households. Yet the sector is notorious for its insecurity, poor standards, and unaffordability. Its problems have increasingly attracted the attention of national and local policy makers, including Southampton City Council (SCC) which convened a Scrutiny Inquiry into the Private Rented Sector during 2023 – 24.

Professor Helen Carr and **Dr Mark Jordan's** expertise in housing law and policy led to their appointment as expert advisers to the Scrutiny Inquiry. They provided briefing papers on evictions, rent levels, conditions and enforcement, gave presentations on aspects of housing law and answered technical questions from Councillors and other stakeholders throughout the process. Their expertise shaped the scrutiny agenda and informed the debate, the final report and SCC's Cabinet response. Full documentation is available on the **SCC inquiry webpage**.

Professor Carr and Dr Jordan's research has contributed to the improvement of the private rented sector in Southampton by:

– Identifying the barriers to effective regulation of the private rented sector and outlining how these may be overcome;

– Organising workshops on tenant activism and the law collaboratively with Southampton Tenants Union growing the capacity and expertise of the tenant's union in Southampton and further afield;

– Developing insights into the contested politics surrounding regulation of the private rented sector and how they might be addressed;

– Published original research in the Journal of Social Welfare and Family Law in 2024 that explores the potential of local government scrutiny as a means of achieving social justice and informs best practice on civic engagement and partnership work between local authorities and universities.

Professor Carr and Dr Jordan have collaborated with a range of stakeholders on these issues including:

– The Cabinet Member for Housing Operations Committee

– Southampton City Council

– Southampton Tenants Union

– Students at University of Southampton and Solent University

– The Southampton Law School Legal Clinic

– The Centre for Governance and Scrutiny (CfGS)

Improving housing conditions in the private rented sector

Local austerity has meant that there is no up-to-date information on housing conditions in the city. The most recent SCC Private Sector House Condition Survey (2008) found that 38% of privately owned and rented homes in the city did not meet the Decent Homes Standard. Unsafe housing conditions negatively impact health and educational outcomes for many households including students, and particularly for families with young children.

Professor Carr and Dr Jordan are now supporting SCC in developing a strategy for the private rented sector that aims to improve housing conditions in the city by strengthening housing enforcement against errant landlords, gathering timely data on housing conditions and supporting tenants asserting their housing rights to safe housing conditions. Building on their experience in Southampton, they have been invited to work with national policy makers to bring about practical and meaningful legal change around licensing of rented housing, rent repayment orders, and strengthening protections from eviction.

Using creativity in law

Professor David Gurnham's research explores how creativity can be (and is being) harnessed to expand and deepen knowledge of legal issues and their impacts. It uses historical, literary, and arts approaches to explore Law and legal problems, revealing fresh solutions.

The **Centre for Justice Studies** investigates criminal law, criminal justice, and theories of crime, justice, and punishment. Its activities include work funded by ESRC, the Southampton Law School Strategic Research Fund and the Southampton Institute of Arts and Humanities.

Professor David Gurnham (Southampton Law School) and Dr Chris Bevan (Durham Law School) jointly organised two interdisciplinary research workshops, which explored the underlying beliefs and assumptions that shape legal ideas.

This collaborative work is developing further into a book of critical essays on the phenomenon of 'masterplots' in law. 'Masterplots' are the hidden narratives that give meaning and authority to our legal practices and tradition.

The impact of the research

Part of a wider knowledge exchange, public engagement, and research project co-ordinated by David with fellow scholar **Dr Haris Psarras**. It focuses on marginalised people's creative responses to justice problems.

This project examines the connections between creative arts, marginalised communities, justice, and the different research methods used to study these connections. The researchers seek better to understand the problems that arise during such engagements, the experiences of marginalised creative artists, and to take seriously the contribution made by the work to wider culture and the arts.

Activities involve marginalised individuals with lived experience and use creative artistic methods to express legal issues. The work ultimately aims to enrich public understanding of the role of the arts in justice problems, and interest in the substantive issues themselves.

My research explores the interconnections between criminal law and the arts, and examines how issues of crime, justice and punishment are illuminated in creative work.

Professor David Gurnham
Professor of Criminal Law & Interdisciplinary Legal Studies

About the author

Professor David Gurnham has authored several monographs, and many peer reviewed articles. He is the editor-in-chief of the journal Law and Humanities (Taylor & Francis). He collaborates with various contributors and guest editors.

In October 2023, David marked the 400th anniversary of Shakespeare's First Folio by publishing a **special issue in the Law and Humanities journal**. This was the first time that Shakespeare's works were bound and printed in an authoritative collected form by a recognised stationer. This practice gave rise to the meaning of legal terms such as 'binding', 'authority', and 'statute' as 'Legal terms of art'.

Law and Humanities journal is the leading publisher of interdisciplinary arts and humanities scholarship on Law in the UK. It provides a forum for discourse on topics such as the use and translation of legal metaphors in literature.

On 12th January 2024, David presented and discussed his research on poetry from prisons with a group of blind and partially sighted visitors to the John Hansard Gallery in Southampton. This formed part of an event by Jo Bressloff (mixed-media artist and art educator), who led the group on a 'touch tour' of the **Koestler Arts exhibition 'Standing on the Edge'** (October 2023 to January 2024). The event was co-curated by prisoners at HM Prison Isle of Wight and comprised artworks by prisoners in the region.

David read poems from the Koestler Voices anthologies and talked about how they address themes and issues relating to criminal justice and the experience of imprisonment.

Enhancing Neurodivergent Graduates' Access to Graduate Employment (ENGAGE)

Many neurodivergent graduates experience difficulties in accessing graduate employment. This is particularly noticeable in the employment outcomes reported by autistic graduates (AGCAS, 2024). They have a greater chance of encountering difficulties in recruitment and other forms of job screening, including overt or tacit forms of employer discrimination and difficulties integrating into neurotypical workplaces.

Research conducted by **Professor Michael Tomlinson**, working alongside Lancaster University's Jonathan Vincent and the Association for Graduate Careers Advisory Services (AGCAS) - as part of a participatory project funded by Research England - have found that neurodivergent graduates feel confident about their careers skills and value their degree-related knowledge for gaining future employment. However, adverse early employment experiences, including prejudice and discrimination, can affect their ability to set and achieve career goals and develop career capital.

The findings are based on a survey of 228 neurodivergent graduates from UK higher education institutions, and follow-up interviews with 14 of the respondents. 72% of research participants found recruitment processes challenging, but difficulties continued even after a job had been secured. Many found it hard to be themselves at work, with one commenting that *"there is no advantage to being your true neurodivergent self in the workplace"*, and another highlighting that employer statements about neurodiversity don't always match the work environment or behaviours *"One of the things*

I find most frustrating [...] is that people always say they want someone who thinks outside the box, but they don't." 58% of participants felt they had to conceal their neurodivergence, and only 17% felt that their neurodivergence would be understood by employers and colleagues. Despite these challenges, there was evidence of positive career trajectories amongst ND graduates, often based on experiencing suitable support and working in workplaces responsive to meeting ND graduates' needs.

Building on the **Graduate Capital Model**, and **AGCAS research on outcomes for disabled graduates**, the Enhancing Neurodivergent Graduates' Access to Graduate Employment (ENGAGE) project has established a series of recommendations for action. These focus on what careers professionals, higher education institutions, policymakers, sector bodies and employers can do, in collaboration with neurodivergent students and graduates, to support the fulfilment of their career potential. The research's recommendations align with different areas of career development support, both within HEIs and amongst employers. For example, the report highlighted the significance of recognising the importance of all neurodivergent graduates' career capitals and facilitating their meaningful growth through careers education, information, advice and guidance and the development and provision of associated networks

and opportunities. In addition, it highlighted the important role of employers in creating supportive structures, for example, mentoring and supervision, where neurodivergent staff feel listened to, valued, and psychologically safe.

The research involved a knowledge exchange event held at Lancaster University with key stakeholder groups, including career practitioners, recent graduates and employers representing good practice in supporting neurodiversity. The employer organisations included Auticon, Ernst & Young, Farm Urban, THG and Lexxic and all provided significant insights on good practice relating to recruitment, coaching and mentoring, flexible adjustment, and software applications that have been used to enhance the ND graduates' workplace integration. This also had a workshop component that generated discussion and sharing of best practice between key stakeholders.

Reimagining education for social justice with the Grenfell Tower community

Dr Wonyong Park uses community-engaged participatory research methods to explore how education can help societies to promote disaster justice, in collaboration with the Grenfell Tower fire community in London.

Working to redress disaster injustice through education

The Grenfell Tower fire disaster occurred on June 14, 2017, in North Kensington, London, and was one of the most tragic events in recent British history. A fire broke out in the 24-storey residential building and spread rapidly due to the flammable exterior cladding. The fire killed 72 people and injured many others.

Investigations revealed significant failures in social housing policy, fire safety regulations and building materials, with the state and cladding manufacturers bearing substantial responsibility for creating and perpetuating these social injustices.

The project considers how we can repair such injustices and build a safe and disaster-resilient society through education.

> **"Education has a crucial role to play in disaster recovery and in creating a just society. Our work seeks to influence how Britain and the world will remember Grenfell in the future."**
>
> Dr Wonyong Park,
> Associate Professor of Science Education

Shaping educational visions and recommendations with the community

The team interviewed various members of the Grenfell community to understand how they want Grenfell to be remembered and taught. In June 2024, they convened four 'Grenfell Education Meetings' with Grenfell survivors and bereaved (including young adults and children) and local teachers to discuss and reimagine education for social justice after Grenfell. Over 40 people from the community attended and discussed the future of education about/for Grenfell.

> **"I thought the meeting was very helpful and comforting, as we were heard and able to express our thoughts, views and feelings on this sensitive topic. I am extremely grateful to work alongside the team and looking forward to continuing working together and making further change."**
>
> A Young Grenfell Survivor

Developing teachers' capacity to teach about Grenfell

The project has identified supporting teachers to teach about Grenfell in schools as a priority. In response, the research team is currently developing a massive open online course (MOOC) for teachers to help them teach about disasters such as Grenfell in an effective, respectful and sensitive way. The work is informed by the visions and recommendations developed through earlier work with the community. It will provide insights into how community narratives of disaster can inform classroom practice and, in turn, nurture younger generations with a critical awareness of social justice issues.

Building a wider disaster network for mutual learning and solidarity

Dr Park has collaborated closely with a range of stakeholders on the project, including the Grenfell Foundation, Grenfell United, the Grenfell Tower Memorial Commission, as well as schools and educators.

Through various online and face-to-face events, the project has facilitated connections and mutual learning between Grenfell families and other disaster communities in the UK and beyond, including those affected by the Hillsborough disaster and the Sewol Ferry disaster in South Korea.

Key takeaways

Overall, the project has highlighted the critical importance of education in shaping the national memory of disasters and addressing injustices in British society. It has also shown that participatory research with disaster-affected communities can produce relevant and culturally sensitive research that identifies local needs and priorities, leading to effective educational interventions and changes towards equity and justice.
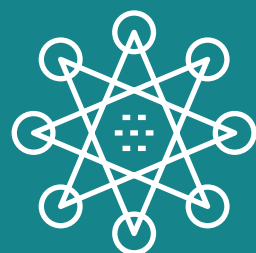
Disorder is Good – Taming disorder in self-assembled materials with topology

Whether it's the intricate patterns in the Alhambra or in the book of Kells or the silicone processor in a smart phone, regularity features in human constructs. Achieving regularity on the nanoscale (comparable to the diameter of DNA's double helix) is too costly or impossible with current technology, which is a major issue.

This is a serious problem because the ability to structure materials on the nanoscale offers the exciting prospect of giving them incredible mechanical or optical properties, such as the passive cooling films developed at the University of Colorado which lower the temperature by 10°C.

Order is not the only route to success. For instance, while butterfly wings do not have perfectly ordered proteins, their optical properties produce stunning, vivid colours. The key feature here is the subtle balance between order and disorder. Without knowing how to look at it, it's difficult to detect the underlying pattern in the variability. This structured disorder streamlines fabrication without sacrificing material reliability. This phenomenon is called Disorder is Good (DiG).

To apply this approach to artificial systems, researchers first need to characterise disorder and identify any structures that may be present. Such a feat is now possible using a new mathematical tool: topological data analysis. This is based on topology, a part of **mathematics** devoted to the study of shape. Topology has been used, for example, to characterise the shape of human lungs and bones allowing a deeper understanding of serious diseases. So far, the primary use of topological methods in data analysis has been visualisation and classification.

The research team, which includes **Professor Jacek Brodzki**, **Professor Malgosia Kaczmarek**, and **Professor Giampaolo D'Alessandro**, has combined innovative experiments with breakthrough methods from topological data analysis to quantify emerging structure in disordered nano-assemblies and classify their response to light. The aim is to design a new generation of controllable nanosystems at a fraction of the cost of the current methods.

In this project, the research team positioned topology as a key component of materials design. To achieve this, they created a new topological measure of the degree of disorder. By doing so, they can give a mathematical answer to the question "is my room more disordered than yours?" They demonstrated the power of this approach by applying it to surfaces with nanoscale structures and have shown that they can pick up nearly ordered structures that may not be perfect but are 'good enough' to give the required optical response.

The research team has associated the optical properties with the nature of the disorder by bringing together:

pure mathematics to identify structure in disorder

numerical modelling to predict optical response

experimental physics to build and measure structured surfaces

As a result, the research team created a new technical paradigm: 'fabrication through controlled disorder.' Their findings show that, indeed, Disorder is Good.

The results demonstrate the robustness, and the universality, of the topological tools and metrics the research team developed. They can be applied to quantify different complex and structured materials from nanopillars on a glass surface, to patterns in liquid crystals, to any image or three-dimensional data set.

The original question was "Is disorder good?" Researchers have taken the first step in answering this question, and they can now say how disordered disorder is. This has already been extremely useful in identifying disordered optical surfaces that have an optical response like that of perfectly ordered ones.

This project is just the beginning. This research can be applied a step further to classify different types of disorder in other ways. For example, a room can be disordered because there is paper scattered around or because its inhabitant is not aware of the existence of a laundry basket. Can researchers link different disorders to different physical or engineering properties? For example, can they say that Type A gives increased tensile strength, while Type B has more vibrant colours? It is true that not all disorder is good, but perfect order is not the answer either.

Computer games with superpower help children with amblyopia or lazy eyes

Amblyopia affects about 1 in every 50 kids and is treatable with occlusion therapy or 'patching'. Patching involves covering the stronger eye for around 3 hours a day for 6 months. This forces the weaker eye to work harder.

Children must stick to the treatment, and this often needs a lot of help from parents or carers. High demands on time and effort cause many families to give up. This leads to the treatment failing for around half the children.

According to **Dr Jay Self**, an eye specialist at the University of Southampton, wearing patches regularly is crucial for treating lazy eye. Success is limited for children over 8, and the process can be tedious and demanding. If left untreated, vision problems persist into adulthood.

Creating games with advanced mathematics software

The University of Southampton worked with Nucleolus Software to develop special computer games to help children with lazy eye. Graduates from the University's Winchester School of Art created the games.

The software uses the smartphone camera to check if the player is wearing their eye patch correctly. If not, the game encourages them to adjust it so they can unlock new levels or earn rewards.

Professor Joerg Fliege, Professor of Operational Research, explains that the software uses advanced mathematics to detect if the patch is worn correctly. If it isn't, the game prompts them to correct this by sending them encouraging messages. The goal is to make patching a more positive experience and increase its effectiveness.

We think motivating children in this way will help them to form a more positive association with their patch and ultimately, increase the effectiveness of their treatment.

Professor Joerg Fliege,
Professor of Operational Research

Gaming as a tool for positive change

The final app will have features for setting goals and providing autonomy to children and their parents. This aligns with Winchester School of Art's approach to gaming as a tool for positive change.

We hope that by turning patching into a superpower in the games, it makes it more enjoyable and empowering for kids.

Dr Vanissa Wanick,
Senior Lecturer in Interaction Design

The untold narratives of female entrepreneurs in South Asia (FESA)

University of Southampton researchers, Dr Trang Gardner, Dr Jane Parry, Dr Brian Hracs and Professor Peter Rodgers are working with academic colleagues, Dr Sajeda Pervin and Dr Minh Tran from University of Southampton Malaysia and University of Da Nang (Vietnam) in an international project funded by the British Academy to explore the economic and welfare challenges faced by female entrepreneurs in the economies of Bangladesh, Malaysia and Vietnam. Local researchers from these countries have recently been added to the network.

The project, Female Entrepreneurship in South Asia (FESA), will be conducted in Malaysia, Vietnam and Bangladesh, particularly in disadvantaged regions of the three countries.

Sustainable female entrepreneurship can play an important role in combatting economic and welfare challenges in these countries. FESA will offer substantial contributions to this important area by studying gender and entrepreneurship within explicitly diverse cultural, traditional and spiritual contexts.

The project will also shine a research light on gender and how it interplays with entrepreneurship in mediating wider inequalities in the chosen research contexts.

Findings will be disseminated in multiple formats and developed alongside policy communities and practitioners to enhance the welfare and economic contributions of the research. They will further underline potential policy recommendations which can be implemented in the countries where this research project is taking place and more broadly across developing economic environments globally.

Focus of work:

FESA will explore how female entrepreneurs negotiate their local contexts and creatively generate working practices that enable work to fit around their lives, building an understanding of how their lives are rooted in, grown from, and transformed by culture, heritage, history, religion, spiritual beliefs, and traditional norms.

The researchers will use qualitative methods, including interviews, diary-keeping, and observing work processes to capture the diverse everyday experiences of female entrepreneurs.

The benefits FESA can offer will extend beyond individuals, to their households, communities and, crucially, to the next generations in local communities. In this way, gender-specific research can have much broader impacts upon societies who can draw resources and confidence from its success stories. The project will showcase new learning for other female entrepreneurs in the communities and can further encourage female entrepreneurs to actively and collectively take action to shift the stereotypes of women being subordinates in households in a positive and supportive climate. By providing inspiring and well-evidenced stories in their outputs, the project aims to provide families with resources for countering economic and societal challenges and pathways to consider types of work that may not have been accessible to them previously. It will also be able to improve social recognition of their valuable contributions in welfare and economic development.
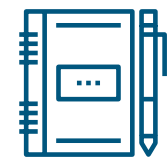
FESA

Female Entrepreneurs in South Asia

"FESA will offer insights and understandings of disadvantaged communities and individuals. We are proud to be able to bring their hidden stories to the attention of policy makers, donors and scholarly communities."

Dr Trang Gardner (lead researcher)

Work After Lockdown

"The Work After Lockdown and the research that we have subsequently been doing at Southampton Business School shows that what began as an accidental experiment around working from home has become a mass hybridisation of the workforce. Organisations have been feeling their way around this new world of work, but by applying the learnings of lockdown and hybrid trials, and by tapping into the goodwill and adaptability that workers showed during the pandemic, there can be multiple wins: decent work that preserves gains around autonomy, flexibility, and work-life balance, at the same time as enhancing organisations' productivity and workforce collaboration."

Dr Jane Parry,
Associate Professor

The Work After Lockdown project, funded by UKRI/ESRC, followed organisations and individuals as they went through changes prompted by the lockdowns of 2020-21.

It aimed to better understand how the unique experiences of the pandemic were transforming working practice, management, and how people wanted to work in the future. The research was a collaboration led by Southampton Business School (**Dr Jane Parry** (PI), **Professor Mina Beigi**, **Dr Michalis Veliziotis**, and **Professor Yehuda Baruch**), together with the Institute for Employment Studies (the late Stephan Bevan), and a flexible work consultancy, Half the Sky (Zoe Young).

The research found that there had been a permanent mindset shift in how work was organised among the UK's formerly office-based workforce. While people had missed the sociability and collaboration of offices, they no longer wanted to be travelling to them every day. Neither they nor their managers thought that this was an efficient way of organising work, and they wanted to hold onto the gains of lockdown working, including improved workforce trust and better-quality meetings. Finding the right balance is at the heart of successful hybrid working.

The research provided recommendations for employers and policymakers around future job design, management, and human resources. The research team contributed to many European and UK Government inquiries and reviews. These included:

Written evidence to four UK Parliament Commons and Lords Select Committees;

Oral evidence to the Welsh Parliament's (Senedd) inquiry on remote working, which informed their Smart Working: Remote Working Strategy for Wales;

Oral evidence to the European Parliament in Brussels on the future of women's work after COVID-19;

Contributing to the scoping of the Government's Future of Work review.

The research was cited as a major source of evidence in key influential parliamentary publications on remote and hybrid working that informed the work of three Select Committees (e.g., Women and Equalities), and it has been featured on the BBC, Radio 4's Today programme, and in broadsheet newspapers.

A key ambition of the research was to feed back emerging evidence and good practice to business communities, reflecting the need to rapidly adjust to unprecedented circumstances. In addition to publishing two accessible online reports, the project ran three online seminars, that attracted large practitioner and policy audiences (over 600 unique participants), generated five articles for The Conversation, which attracted over 200,000 views, and produced an accessible video and a website to share articles, blogs, and policy papers. The researchers also convened a policy roundtable with representatives from key government departments, including the DfT, BEIS, FSB, Acas, and House of Commons HRM representatives, to ensure that live policy issues were reflected in the ongoing research.

As new ways of working are continuing to evolve, this research stream has been developed further through research commissioned by Acas to look at how flexible working was used post-pandemic and to inform their latest Code of Practice for Employers. This research has looked at how sectoral factors affect flexible working policy and practice and has taken place in a context where the legislative environment has changed with the 2024 Employment Relations (Flexible Work) Act, providing good practice guidance for employers of the UK's 35m workforce.

The Work After Lockdown research revealed vulnerabilities among young people in hybrid working, which we are currently exploring further through research in partnership with three local organisations, following young people's hybrid working practice as it becomes more established, and using diary studies to track productivity, well-being, and learning. The PI of Work After Lockdown, Jane Parry, has recently been appointed the UK Parliament's Thematic Research Lead for Business, Economics, and Trade (funded by UKRI/ESRC) for 2024-26, a position which will provide new opportunities to work with parliamentarians to connect research on remote and hybrid working with evolving policy.

Work After Lockdown

Green Stories

Professor Denise Baden's research into positive role models and how people respond to catastrophic vs solution-focused fiction and news stories led her to believe that our current approach of trying to 'scare people green' can backfire as it leads to avoidance, denial, or self-protective behaviours as often as it does to pro-environmental behaviours.

This is a problem as most news is negative and almost all climate fiction is dystopian. Her research showed that showing relatable characters engaging in pro-environmental behaviours that readers could imitate was the most effective approach to raise awareness and lead people to adopt green alternatives. This led to her setting up the **Green Stories project** in 2018 with the aim of encouraging writers to embed climate solutions into their stories or write stories that showcase what a sustainable society might look like. The project has run 20 free competitions across a range of formats, including novel, interactive fiction, and radio script, resulting in 10 publications and two plays.

In 2024 Professor Baden received funding from the British Academy Shape Involve and Engage Fund to put on the play 'Murder in the Citizens Jury'. This version was a dramatic monologue of 25 minutes exploring the ethical crisis of the Director of Public Prosecutions who must decide whether to prosecute a murder, alienating his family and bringing about the end of Citizens' Assemblies in the process. Feedback from the first two performances showed it raised awareness of the potential of Citizens' Assemblies as a way to reboot democracy and allow it to make more sustainable climate-friendly decisions.

Using the feedback from this run, a full-length whodunnit version was written and staged in September 2024; an interactive play in which eight people in a Citizens' Assembly debate the most important challenge in the history of humanity – how to save ourselves from the looming climate crisis. The goal when choosing which climate solutions to include was to focus on those which are hard for politicians to talk about as they focus on reducing consumption, such as on-demand buses and sustainable farming. Usually in business or government, one would use a stakeholder analysis to see who is benefitted/harmed by any policy and how. These can be very dry, and it can be hard to engage with the real impacts emotionally as the groups affected can seem distant. The play allows stakeholders to become characters and as such we identify with them and their needs more easily.

> **"I work in sustainability and climate change, and the more you know the scarier it is. But all the solutions are right here they just have to catch on."**
>
> Professor Denise Baden

Key moments

2019

In 2019 Retreat West published 'Resurrection Trust' which was the anthology of 21 short stories resulting from Green Stories' first short-story competition. It had a foreword by Caroline Lucas and review by Jonathon Porritt.

2021

In Sept 2021, 'Habitat Man', was published; a story inspired by a real-life green garden consultant who retired early to help people make their gardens wildlife friendly. Research indicates that it led 98% of readers to adopt at least one green alternative as a result of reading the book.

In 2021, Habitat Press was established to support publications emerging from the Green Stories project.

2022

In 2022, Professor Baden was delighted to be one of the key speakers at the Mirrors or Movers Conference run by the Responsible Media Forum, attended by sustainability managers from the BBC, Netflix, Bafta as well as scriptwriters, journalists etc.

In 2022, Green Stories worked with Change Agents UK, Herculean Climate Solutions and the Climate Fiction Writers' League to team experienced writers with climate experts. This resulted in an anthology of 24 short stories each with climate solutions at its heart: No More Fairy Tales: Stories to Save Our Planet. This was shared at COP27 and COP28 and made the Top of the Cops newsletter. Each story is linked to a webpage where readers can find out how to progress the ideas in the stories.

2023

An exciting recognition of Professor Baden's work came in 2023 when she found herself on the Forbes List of Climate Leaders Changing the Film and TV industry.

Professor Baden was also a key speaker at the Media Production & Technology Show/ Albert Sustainability Conference in 2023, on Writing Sustainability In Your Stories: Why Climate Content Matters.

International Research Collaborations

Master Mathematics Teachers

In this mixed methods study conducted by Southampton alumnus Dr Zhenzhen Miao, Professor Christian Bokhove and Professor David Reynolds, the researchers took a comprehensive look at so-called Master Mathematics teachers across five Chinese provinces, Anhui, Beijing, Jiangsu, Jiangxi and Tianjin.
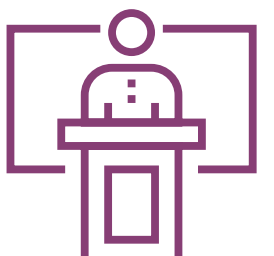
Building on data collected with 70 master mathematics teachers and 3,178 students and from teaching research events at the school, municipal, provincial and national levels, the Master Mathematics Teachers (MasterMT) project is, to date, the first that has looked at the legendary tribe of master mathematics teachers in China at such a large scale, and with such breadth and depth.

The work has been especially timely and important to dispel educational myths about the teaching and learning of mathematics in East Asia. Rather than painting a caricatural picture of Chinese mathematics education, often the result of high scores on international largescale assessments like PISA and TIMSS, the study shows the diversity and complexity of mathematics teaching and learning in all its facets. Furthermore, the comprehensive nature of the study, combining qualitative and quantitative evidence, shows the added value of triangulation: using multiple sources of evidence to gain insights into educational practices.

The research offers invaluable insights for any teacher or teacher educator who wants to improve mathematics teaching and learning and generate educational and professional excellence in primary schools and beyond. The study provided the team with a thorough understanding of: (1) the quality and characteristics of master mathematics teachers' teaching, (2) the quality of mathematics learning they have nurtured amongst their students in affective, metacognitive and cognitive dimensions and (3) the teaching-learning mechanisms that underpin excellent performance in the three dimensions. Alongside the quantitative and qualitative evidence on educational excellence, they also explored the trajectories and processes of professional development that generate professional excellence amongst master mathematics teachers and their peers within and across primary schools.

The group hope and expect that both substantively and methodologically, the work can serve as a 'best practice' blueprint for researchers that move in the area of international comparisons.

All the findings are published in a book, available Open Access **here**.

The 2023 International Conference on Sustainability, Environment, and Social Transition in Economics and Finance (SESTEF 2023)

The SESTEF 2023 International Conference was a pioneering event focused on advancing the global debate on climate finance, sustainability, environmental issues, and social transition.

It offered a distinctive platform for interdisciplinary discussions on vital topics, including resource analysis and policy, environmental regulation, corporate sustainability, climate risk management, and financial market dynamics. SESTEF 2023 aimed to develop innovative solutions and strategies that promote sustainable development and resilience, reflecting the University of Southampton's commitment to these principles. The conference's alignment with the newly established Sustainability and Resilience Institute underscores its role in supporting the university's sustainability strategy through collaborative discussions, knowledge exchange, and problem-solving, all essential for achieving common sustainability goals.

The impact of SESTEF 2023 has been significant. With over 170 participants from 34 countries, the conference facilitated a rich international exchange of diverse ideas, promoting a deeper understanding of the challenges and opportunities in sustainability and finance. The event has stimulated ongoing dialogues and collaborations, influencing both research and practice in these critical fields. Session Chairs, Presenters, and Discussants brought a wealth of expertise and experience to the SESTEF 2023 Conference, playing a central role shaping it into

a platform of scholarly excellence. Their insightful presentations and engaging discussions added immeasurable value to the academic debate. The Scientific Committee maintained the high academic standards of SESTEF 2023, contributing significantly to the conference's success.

Several key moments defined the success of SESTEF 2023. Inspirational opening speeches by **Professor Mark E. Smith**, President and Vice-Chancellor of the University of Southampton, and **Professor Laura Costanzo**, Head of the University of Southampton Business School, set the tone for the conference. Additionally, the keynote addresses by Professors Douglas Cumming and Richard Tol left a lasting impression, encouraging deeper exploration of the intersections between sustainability, environment, and social transition in economics and finance. The meticulous planning and seamless execution by the Events Team and Organising Committees ensured that the conference was a resounding success.

The success of SESTEF 2023 was made possible through the collaborative efforts of several esteemed institutions, including the University of Southampton Business School, Paris School of Business, Audencia Business School, Université Paris-Saclay, and University of Paris I: Panthéon-Sorbonne. These collaborations enriched the conference, bringing diverse perspectives and expertise that significantly contributed to the depth and breadth of discussions. The partnerships formed through SESTEF 2023 have paved the way for future joint research initiatives, furthering the global impact of our collective efforts.

Cryptocurrency Research Conference (CRC) 2024

The [Cryptocurrency Research Conference (CRC)](#) is an international research conference focused on the niche areas of cryptocurrency, DeFi, and Fintech. Established in 2018 by [Dr. Larisa Yarovaya](#), the Director of the Centre for Digital Finance at Southampton Business School, CRC has become a pioneering academic conference in this innovative field.

Today, it is a well-known event that attracts scholars and industry speakers from all over the world each year. CRC2023 took place at the International University of Monaco, while in 2024, the 7th edition of the event was held at Zayed University in Dubai, UAE, on September 23-24.

Over the years, papers presented at the Cryptocurrency Research Conference have been published in top academic journals, including numerous dedicated Special Issues, e.g. in the *International Review of Financial Analysis, Economics Letters, Finance Research Letters, European Journal of Finance, Emerging Markets Review, Financial Review, and International Review of Economics & Finance*, to name but a few. These papers have shaped the cryptocurrency and Fintech fields, and many have become pioneering and highly cited works. Elsevier's *Research in International Business and Finance* journal has been a permanent sponsor throughout the years, offering $1,000 prizes for the Best Paper Award and the Best PhD Student Paper Award. The CRC is also very proud to have supported numerous doctoral students who have undertaken the challenging journey of working in this innovative field. The conference has provided a great kick-start to their careers.

The Cryptocurrency Research Conference, over the past seven years, has featured top keynote speakers whose caliber, influence, and reputation in the field cannot be overestimated. Speakers have included Prof. Brian Lucey (Trinity College Dublin, Ireland), Prof. Carol Alexander (Sussex University, UK), Prof. Campbell Harvey (Duke University, USA), Obi Nwosu (former CEO of Coinfloor, UK), Garrick Hileman (Head of Research at Blockchain, LSE, UK), Prof. Douglas Cumming (FAU, USA), Prof. Sean Foley (Macquarie University, Australia), Prof. Gerald Dwyer (Clemson University, USA), and Dr. Cathy Mulligan (University of Cambridge, UK), to name but a few.

The 7th CRC2024 featured the Editor-in-Chief of the Journal of Finance, Professor Antoinette Scholar (MIT Sloan School of Management, USA), and Associate Professor Sofia Johan (FAU, USA). The wealth of expertise of the keynote speakers is incredibly inspiring for the community and has greatly contributed to the success of the event over the years.

The CRC has also successfully created a community of crypto scholars who collaborate, share insights, publish together, and provide feedback. The event has truly united scholars working in this emerging area and has fostered a powerful network of researchers, editors, and reviewers driving this field of science forward. Over the years, the event has attracted over 300 presenters and more than 700 registered attendees from over 70 countries. With the hybrid format of the event, they demonstrate their commitment to the principles of Equality, Diversity, and Inclusion. The CRC are proud that the event can be attended remotely by people with disabilities, family constraints, or limited budgets for international travel. The benefits of attending the event go beyond publishing in prestigious journals; each attendee becomes part of an invaluable network of crypto scholars, which will undoubtedly support their career journeys and enhance their impact.

Applying learnings from EU carbon taxation on trade scheme to the UK

The UK faces a challenge of "carbon leakage," where high carbon prices within the UK could push emission-intensive industrial processes to countries with lower carbon prices.

To address this, the UK has followed the EU and is in the process of implementing the Carbon Border Adjustment Mechanism (CBAM). This mechanism imposes a tax on the carbon content embedded in imports. However, accurately measuring embedded emissions is difficult, so CBAM will initially apply to only six industries and will use benchmarks rather than actual emissions data. While these simplifications make CBAM more feasible to implement, they limit its effectiveness in preventing carbon leakage.

To overcome these limitations, an international research group proposes an alternative policy called the Leakage Border Adjustment Mechanism (LBAM). Unlike CBAM, LBAM does not require precise data on embedded emissions and can be applied to all tradable sectors. LBAM uses import tariffs and potentially export subsidies to neutralise changes in trade flows caused by higher EU carbon prices. The mechanism relies on information about domestic output-to-emissions elasticities, as well as elasticities of import demand and export supply, which can be estimated using publicly available data.

The findings suggest that when CBAM is applied to only a few sectors, LBAM outperforms CBAM in reducing global emissions and lowering the economic costs associated with carbon emissions mitigation policies. LBAM offers a more comprehensive and effective solution to the problem of carbon leakage. Additionally, results show that CBAM completely disregards leakage in export markets, which explains why CBAM, when applied to only a few sectors, is not significantly more effective in reducing carbon emissions than having no carbon adjustment mechanism in place.

The group's analysis has the potential to be highly impactful and leads to clear policy recommendations that should be considered in the development of effective border adjustment mechanisms. Specifically, they recommend that:

A. To be most effective, CBAM should be implemented across all sectors.

B. If implementing CBAM in all sectors proves too challenging, the UK government should consider adopting the Leakage Border Adjustment Mechanism (LBAM), which neutralises import (and potentially export) leakage and does not require detailed information about embodied emissions in imports.

C. To support decarbonisation, the UK government should also implement policies that address export leakage risks.

The researchers are actively engaging with EU and UK policymakers to advocate for the adoption of LBAM or, at the very least, to extend CBAM coverage to additional sectors and export markets. They organised a roundtable in London on September 26th 2024, inviting Members of Parliament and civil servants from various departments, such as the Department for Energy Security and Net Zero. This event allowed them to share their early findings on the UK and gather insights from policymakers on future anti-leakage policies. Following the roundtable, the group plan to write a policy brief incorporating the insights and feedback from the discussion, which they hope will generate further impact.

The research is co-authored by **Dr Chiara Forlati** (University of Southampton), Alessia Campolmi (University of Verona), Harald Fadinger (University of Vienna), Sabina Stillger (University of Mannheim), and Ulrich W. Wagner (University of Mannheim). The findings are relevant to both the European Union (EU) and the United Kingdom (UK).

Key Moments

- The research group published a column on VOX.EU titled, "A proposal to refocus the EU carbon border adjustment mechanism on preventing carbon leakage."

- The work has been widely disseminated at many conferences, such as the Research Conference on the Single Market at the European Commission and the CEPR-NBB Joint Research Workshop on Reaching Net-Zero in Brussels, as well as in several seminars, including one at the World Trade Organization (WTO) and another at Stanford University.

ProTechThem: Building Awareness of Safer and Technology-Savvy 'Sharenting'

This multidisciplinary study led by Professor Pamela Ugwudike is exploring the role of social medial AI in inadvertently co-producing risks associated with new digital cultures.

The study, which is also exploring remedial strategies, focuses on the culture of 'sharenting' which is the practice of parents and guardians posting sensitive information about children in their care, on social media platforms. A key aim of the project is to work with its external partners to develop AI-driven cybersecurity tools for detecting risky sharenting content in order to protect affected children from cybercrimes and digital harms. The partners include the UK government's Department for Digital, Culture, Media, and Sport (DCMS) and the Italian National Police (Carabinieri).

The project's interim findings have been presented to partners including the UK's Department for Digital, Culture, Media and Sport (DCMS). Afterwards, the DCMS expressed an interest in the AI tools being developed by the project and will be involved in the design process.

The Italian Carabinieri (Italian National Police) are another project partner and after a recent project meeting where interim results were shared, they invited Professor Ugwudike's team to write a policy brief. The piece which is entitled, 'Sharenting: Analysis and risks of a phenomenon on the web' will soon be published in their national official publication.