

# CAA Environmental Sustainability Panel

Annual Report for the year ended  
30 June 2023



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## About the CAA Environmental Sustainability Panel

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### Who we are

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The CAA Environmental Sustainability Panel (the Panel) is a group of independent experts who bring together experience and expertise, along with strategic thinking, on a wide range of environmental sustainability topics relevant to the CAA. Our members' biographies can be found at the end of this document.

### What we do

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The Panel is a specialist, non-statutory body which acts as a critical friend, giving expert advice to the CAA as policy is being developed, and ensuring environmental sustainability is considered in the thinking and work of the CAA. Our objective is to bring expertise, insight and challenge into the CAA's work programme where it is related to environmental sustainability.

The key activities of the Panel are to:

- provide expert technical advice to the CAA to support the CAA's work programme relating to its environmental roles, or on specific tasks as requested by the CAA, including input to the CAA's response to any relevant external consultations;
- help the CAA to understand and take account of environmental interests and impacts in its regulatory policy and framework (although the Panel will not be expected to review or comment on individual regulatory decisions);
- challenge and support the CAA on its progress towards its strategic focus of improving environmental performance, both within the aviation and aerospace sectors and within the CAA itself, including informing the delivery and future evolution of the CAA's Environmental Sustainability Strategy;<sup>1</sup> and
- provide advice, critique and recommendations on the CAA's research and help identify where further research may be needed to inform the CAA's sustainability agenda.

### What we do not do

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The Panel will not:

- campaign publicly or deal with individual complaints from the public;

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<sup>1</sup> <https://www.caa.co.uk/consumers/environment/environmental-sustainability-strategy/>

- represent or correspond directly with air travellers, industry or community groups unless requested to do so by the CAA;
- be involved in or comment on operational issues or complaints raised by individuals, such as noise from flight paths.

## Our remit

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Our work is limited to those activities that fall within the CAA's statutory remit or reasonable influence.

## Chair's Foreword

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This has been an incredible first year of operation for the Environmental Sustainability Panel. As a Panel, we have “formed and stormed” to create a vibrant and discussive group providing timely and relevant insight into the CAA, and have established ourselves as a reputable, go-to set of advisors on environmental matters for the CAA. This is evidenced by regular requests from across the CAA to come and seek the Panel's input on and challenge to the CAA's environmental sustainability knowledge and understanding. As with all new panels, we have debated and challenged our scope and remit to fully understand our purpose, especially in light of the CAA's Environmental Sustainability Strategy, but the debate has always been engaging and constructive as the CAA commits to supporting the aviation sector on its sustainability transformation.

The Panel faces inwards towards the CAA in terms of the challenge and advice provided. This is highlighted in some of areas where we are executing this role, such as the CAA's Environmental Sustainability Strategy and its prioritisation principles, to name but a few of the topics we discuss with the organisation. This report does not share the details of the insight provided to the CAA, but it is fair to say that our insight generally flows in a certain way:

- It often starts by considering specific environmental questions around a particular topic, for instance the potential noise impacts of supersonic flight or of air quality around airports. In some cases, there may be one or two Panel members with specific expertise who will take the lead in the discussion.
- The discussion then flows into considering how wider environmental impacts may also be considered, to provide holistic advice from the Panel as no impact acts in isolation of the other. The breadth of expertise across the Panel means that a much wider range of links and impacts are considered, leading to interesting debates on the benefits to or detriment on the environment and public health.

This two-strand approach is proving to be valuable to the CAA; it is deepening their knowledge in the specific impacts, but for me, just as importantly, it is starting to build a more holistic understanding of environmental matters. As aviation is a complex system of systems, supporting the CAA on a system of systems approach to environmental impacts feels intuitively like the right approach. In addition to our Panel discussions, as Chair I engage with both the CAA Board and its Executive Committee on our efforts and thoughts on the CAA's role in affecting change in the aviation sector. I am constantly delighted with the open door, the curiosity and demonstrable commitment by the organisation's leadership to be a part of the solution to support that transformation.

We are now seeing a virtual queue of topics to come to the Panel, wide ranging topics spanning innovation, aircraft, airports and airspace. It is a positive shift that the CAA is

taking to bring environmental insight into discussions at the beginning of their activities. We have consequently been able to lay out a longer-term work programme which we published in June 2023. There is much to be done and the work programme details how the Panel is contributing to the task in hand.

Here, I can publicly thank my fellow Panel members for their insight, commitment and passion to support the CAA. The Panel are a diverse group with deep and well, very different types, of expertise, all hugely tolerant of my chairing style but most importantly are committed to ensuring the Panel is an effective tool in the CAA's arsenal as it leads, influences and regulates on environmental matters.

I would also like to formally acknowledge the work of the CAA teams who come to the Panel with more questions than answers, with well-prepared papers and an open curiosity as they are bombarded by questions and suggestions. Thank you for making the Panel effective, productive and a joy to chair.

Dr Ruth Mallors-Ray OBE  
CAA Environmental Sustainability Panel Chair

## Chapter 1

# How we work

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## Our aims

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The Panel supports and challenges the delivery of the CAA's Environmental Sustainability Strategy (the Strategy)<sup>2</sup> as the CAA develops its policy and position across its regulatory and advisory functions. The Strategy seeks to reflect the roles of the CAA in terms of leader, regulator, influencer and observer of developments, with an overarching imperative to communicate widely, iteratively and consistently.

As a Panel, we seek to ensure that the CAA is equipped with appropriate insight, robust evidence and constructive challenge to inform the delivery of these roles set out in its Strategy and, as a result, the work it delivers to support the aviation community. We also provide insight and expertise across a wide range of topics relating to environmental sustainability, and inform the CAA on potential short-, medium- and long-term developments in our areas of expertise that are relevant and impact upon aviation's journey to environmental sustainability.

## How we prioritise our work

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The Panel is a small, specialist policy resource for the CAA and delivers high-quality, evidence-based advice in a way which is designed to maximise our impact. Given our limited capacity, we prioritise our work carefully, asking six key questions before embarking on any given project:

- Does it fall within the Panel's remit?
- Is it an area where the CAA is best placed to effect change?
- Is it (or should it be) a priority for the CAA?
- Is it an area which is poorly understood or not represented which could benefit from additional focus?
- Is the requirement of the Panel explicitly clear in the activity?
- Does the impact of the work have the potential to inform future developments to enable environmental sustainability?

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<sup>2</sup> <https://www.caa.co.uk/consumers/environment/environmental-sustainability-strategy/>



## Chapter 2

# Understanding our impact

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This report covers the Panel's first year of operation to 30 June 2023. Over this year, we set out to build our foundations as a trusted resource for the CAA by:

- establishing our ways of working;
- building our relationships with the CAA and other stakeholders;
- getting to know the CAA by understanding its role and priorities in the environmental sustainability space; and
- defining how we can most effectively add value through our interim work programme.

Setting these foundations firmly will lead to the best outcomes for the Panel's role as the CAA's 'critical friend' on environmental sustainability matters.

## Ways of working

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Established in a complex and fast-moving space, as aviation stakeholders are pivoting their thinking towards an environmentally sustainable future, we were keen to ensure that our role as a new CAA resource was formulated on firm foundations.

Our first months of working focussed on:

- Developing relationships between the Panel as a group, recognising and drawing together our diverse range of experience and expertise which we bring around aviation's environmental sustainability issues;
- Agreeing our Terms of Reference<sup>3</sup> and ways of working;
- Working with the Panel's Secretariat to establish how to most effectively engage with and communicate requests from the CAA for advice from the Panel;
- Developing clarity of messaging over what the Panel will and will not do.

Establishing these boundaries ensures we work effectively, constructively challenge each other and the CAA, resulting in a holistic approach to environmental considerations.

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<sup>3</sup> <https://www.caa.co.uk/media/lpmltvaw/updated-sustainability-panel-terms-of-reference-jan-2023.pdf>

## Building relationships

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### CAA

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We know that building a strong relationship with the CAA is a key part of being a credible and trusted 'critical friend'. The environmental sustainability landscape's development will require difficult decisions in the years to come, and the CAA has asked us to both advise and challenge. To develop this trust over the first 12 months of our operation the Panel has established relationships at all levels of the organisation:

- **At senior leadership level** We attended the CAA Board in October 2022. The Panel Chair has met regularly with the CAA Chair, Sir Stephen Hillier, and the CEOs.
- **At working level** We have engaged with a range of teams across the CAA, including the Sustainability Team (who own the Secretariat function of the Panel), the Horizon Scanning Team and the Airspace Modernisation Team, to understand their roles, remit and work programmes and offer technical advice on specific projects (set out further below). We look forward to engaging further with these teams, and others across the CAA, as we move into our second year of operation.

We are cognisant of our evolving relationship with the CAA as it too continues to evolve its role as the UK's aviation regulator to address wide ranging developments across the industry, of which environmental sustainability is only one.

### Other stakeholders

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In this early period of operation, as we embed our role as the CAA's 'critical friend', we intend to be an internally-facing resource for the CAA. However, we recognise the importance of building relationships with external stakeholders to ensure we understand their points of view and in particular their specific engagements with the CAA. Soon after being established, we met with several stakeholders to introduce them to the Panel's expertise and remit, including:

- Airlines UK
- Aviation Environment Federation (AEF)
- Sustainable Aviation
- Department for Transport

We are keen to continue to maintain our relationship with these and other stakeholders and as such will continue to meet external stakeholders on a regular basis.

## Understanding CAA's role in the environmental space

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As a Panel, we are of the view that the CAA has a significant opportunity to make a positive impact in enabling environmental sustainability change. The CAA is a trusted

voice in its own right, nationally and internationally, and if it chooses to can wield considerable convening power to unlock barriers and overcome challenges. We recognise many opportunities for the CAA to be leaders in the environmental sustainability space, while also noting that this does not necessarily mean it is always the right party to be doing the work to deliver an environmentally sustainable industry.

## First interim work programme

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Our first interim work programme was published on the CAA website and ran from October 2022 to March 2023.<sup>4</sup> This was an intentionally shorter-term work programme, which recognised that the Panel was newly established and that the CAA's Environmental Sustainability Strategy, resources and capabilities were at an early stage in their formation.

## Supporting delivery of CAA's Environmental Sustainability Strategy

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At each Panel meeting, the CAA has provided us with an update on its progress against the seven work areas of its Strategy.<sup>5</sup> This has enabled us to understand the CAA's work programmes that sit under each area of the Strategy. However, we stress that while we can support and advise on the CAA Environmental Sustainability Strategy, we do not own it and it is for the CAA to determine its priorities and how it does (or does not) incorporate the advice of the Panel.

We directly engaged on this with the CAA Sustainability Team twice in its first year, in particular around the prioritisation principle. The prioritisation principle will create a framework to consider environmental impacts; this is necessary where there are currently no explicit targets or guidelines set by legislation to guide the CAA on how it should act in regard to trade-offs between different environmental impacts. The CAA team reported that they found the Panel offered "practical reflections on how the prioritisation principle can help create a conversation and decision-making structure, as opposed to securing certain outcomes". The CAA team also noted that the Panel "reinforced the need for an acknowledgement in the prioritisation principle of harms to both human health and the terrestrial, aquatic and marine environments, as well as harm to the planet". The Panel also highlighted the need to consider inter-generational factors, such as considering how decisions on climate change mitigation and adaptation made today will impact generations of the future.

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<sup>4</sup> <https://www.caa.co.uk/media/3yenaon3/revised-caa-environmental-sustainability-panel-interim-work-programme-oct-2022-march-2023.pdf>

<sup>5</sup> <https://www.caa.co.uk/media/q3vi4up3/cap2361-caa-environmental-sustainability-strategy.pdf>

## **Supporting CAA's Environmental Sustainability team's programme of work**

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The CAA's Environmental Sustainability Team undertake both strategic delivery of the CAA's environmental sustainability role, as well as technical analysis and reporting duties. In our first year we have supported the team in both of these functions.

### **Surface access**

One of the CAA's key areas of work under its Strategy is to assess how relevant regulated activities impact on a local environment. Under this area of the work, the CAA sought our views on the environmental impacts of surface access to airports. This included air quality impacts – in which the CAA has an observing role – as well as noise from vehicles accessing the airport. The CAA was keen to understand the issues, risks and evidence relating to air quality and noise from surface access to airports, to inform a potential policy development discussion within the CAA on whether it should be taking a more active role on this topic.

We noted the challenges of the CAA not having clear statutory responsibility in this area; however, we noted there are nevertheless significant opportunities to have some influence in this area by using its trusted voice to convene and lead discussions across the range of parties involved to find solutions. We advised that it was important to consider the public health impacts of airport surface access, including the impacts of air quality and noise from surface access to airports on health. We also explored how surface access could link into existing reporting requirements that the CAA has, including its obligation to report on the environmental impact of UK aviation, but suggested that it would be important to approach this strategically to be able to make a difference (and not just measure for the sake of measurement). We advised that transport research and modelling research could provide evidence of impact of charges on the environmental impacts of surface access.

### **Trade offs**

The CAA was tasked by DfT to consider trade-offs between noise and CO<sub>2</sub> in certain scenarios. We encouraged the CAA to consider whether there are credible metrics that can be used to measure and balance different environmental impacts, the importance of considering the wider and holistic system effects of a trade-off decision between environmental impacts, and the importance of considering the public health element of aviation's environmental impacts.

## **Supporting wider CAA programme of work**

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### **Supersonic flight**

We engaged with the CAA Horizon Scanning and Insight Team on the environmental implications of supersonic flight. The CAA team had recognised supersonic flight as an

emerging trend and were in the early stages of considering the implications of it for the CAA. We offered inputs and guidance on relevant research from our various areas of expertise, including around the impact of different emissions on stratospheric ozone depletion and climate, the scale of potential impact of noise on communities and current international debate on standards around noise and emissions. We also made clear that updated research in this area was needed, and that standards developed at the time of Concorde developments had not been the focus of any significant refresh since. The CAA Horizon Scanning and Insight team reported that “the Panel used their expertise to advise our team on issues we had not considered. Insight from the Panel has significantly impacted how the team approach technical topics and utilise internal resources to reach decisions.”

### **Net zero aviation fuels report**

The Panel also engaged with the several CAA teams working on aviation fuels to discuss views of the Royal Society policy briefing published in February 2023.<sup>6</sup> The Panel provided advice around the technical considerations of the different fuel types outlined in the report, including practical uses in aircraft, challenges in the different requirements for gaseous and liquid hydrogen and economic impacts from competition for hydrogen with other industries. The Panel also highlighted the opportunities to the CAA to demonstrate leadership, without necessarily carrying out the work themselves, by using its position to convene discussions on the way forward in aviation fuels.

### **Building environmental sustainability literacy**

The CAA has recognised the importance of developing a strong internal understanding of sustainability issues, in order to make informed and effective decisions as part of its role in supporting the industry. We have supported the development of the CAA’s environmental sustainability literacy through:

- running regular webinars on our areas of expertise, including the impacts of aviation on climate and air quality;
- providing reputable and reliable written resources;
- using the opportunity to provide subject matter teach ins, alongside advice, to CAA teams who bring specific technical questions to us.

In providing these resources, we have been cognisant of making clear where there are uncertainties and a range of views on a topic.

In our first year we have recognised both enthusiasm and commitment across the CAA to deepen its knowledge of environmental matters. We will continue to support this

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<sup>6</sup> [Net Zero aviation fuels: resource requirements and environmental impacts](#)

knowledge development through a bespoke environmental literacy development programme incorporating briefing papers, webinars and wide-ranging discussions.

## Strategic issues

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Recognising that the Panel bring a broad range of expertise and experience which can be used to inform and advise the CAA on wider developments in environmental sustainability, and that the CAA ‘does not know what it does not know’, we developed a ‘challenge note’ format to proactively provide insight to the CAA on specific strategic areas, reflecting the current thinking and research on particular environmental factors and areas of further investigation that the CAA may wish to consider. We have spent our first year developing an approach and format for development and delivery of these challenge notes that will best serve the CAA.

## Engagement with Consumer Panel

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Recognising consumers’ growing interest in understanding the impact of aviation on the environment, and the importance of consumers having reliable and trustworthy information about the climate impact of aviation, we have built a relationship with the CAA’s Consumer Panel<sup>7</sup> to collaborate on the synergies between science and consumer interests around environmental sustainability. This will be an expanding area of work in future, as consumers’ interest in and understanding of the impact aviation has on the environment continues to grow.

The two panels came together in January 2023 to discuss future opportunities for joint working where the intersection of science and consumer interests may develop, including around the CAA’s work on the provision of information to consumers on the environmental impact of their flights. The two panel Chairs also engage regularly.

## Priorities for 2023 – 2024

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We published our 2023-2025 work programme in July 2023.<sup>8</sup> This first two-year work programme builds on the foundations set within our first year of operation, and sets out our approach to continuing to work with the CAA in two ways:

- Actively, by responding to requests from the CAA for input and expertise on particular matters in its work programme, where the CAA recognises that it needs our expertise and challenge to ensure it is best able to incorporate environmental sustainability into its work; and

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<sup>7</sup> <https://www.caa.co.uk/our-work/about-us/caa-consumer-panel/>

<sup>8</sup> <https://www.caa.co.uk/our-work/about-us/the-cao-s-environmental-sustainability-panel/>

- Proactively, by drawing on our expertise, reviewing areas in the CAA's forward work programme and assessing the CAA's levels of knowledge and awareness to identify where we consider the CAA may be able to make the most significant difference by drawing in environmental thinking into its work.

## Chapter 3

# Transparency

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## Expenditure

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The Panel cost £51,435 (excluding VAT) in Chair and member fees and expenses in the year to 30 June 2023. This was paid for by DfT.

## Panel meetings

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In the year ending 30 June 2023, the Panel met formally eight times. The minutes of these meetings are published on the CAA website.<sup>9</sup>

## Terms of Reference

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The Panel's Terms of Reference are published on the CAA website.<sup>10</sup>

## Working with stakeholders

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The Panel primarily interacts with the CAA, providing advice and engaging with staff at all levels. In our first year as we established ourselves and built our profile and relationship with the CAA, we were almost exclusively internally focussed. However, as part of introducing our role and remit, we engaged with:

- Airlines UK
- Department for Transport
- Aviation Environment Federation (AEF)
- Sustainable Aviation

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<sup>9</sup> [The CAA's Environmental Sustainability Panel | Civil Aviation Authority](#)

<sup>10</sup> [The CAA's Environmental Sustainability Panel | Civil Aviation Authority](#)



## Chapter 4

# Panel members

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## Chair

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### **Dr Ruth Mallors-Ray OBE FRAeS**

Ruth has a broad and extensive understanding of both the aviation industry and the complex relationships between government, industry, academia and the public. A Non-Executive Director of the National Composite Centre and Chair of the Strategic Advisory Board of the Digital Supply Chain Innovation Hub, and the former Chief Operating Officer of the Aerospace Technology Institute, Ruth has significant experience of strategy development and execution with a focus on challenge led innovation with impact. She is an experienced chair of technical and advisory panels, focusing on engagement and consensus building on complex topics, with a strategic approach to act in the best interests of the whole and achieve the outcomes for a range of stakeholders.

## Members

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### **Professor Charlotte Clark**

Charlotte is a Professor in Environmental Epidemiology at St George's, University of London. She is an expert in applying social science to the issue of noise effects on health and communities, and has broad experience working with airports, regulators, governments and communities. Charlotte brings objective and evidence-based advice on the impacts of noise on the community to the Panel.

### **Dr Martin Hawley**

Martin is an expert in Air Traffic Management and airports, especially around the interfaces of business, technology and operations. His experience and skills include climate technology, environmental economics, sustainability innovation and performance indicators. He brings wide international experience and a strong grounding in research methodology.

### **Professor David Lee**

David is a Professor of Atmospheric Science and Director of the Centre for Aviation, Transport, and the Environment (CATE) at Manchester Metropolitan University. With 25 years of experience as a specialist in climate science, having participated in many assessments of the Intergovernmental Panel on Climate Change, he is skilled in developing the links between science and policy. He has particular interest in the policy aspects of mitigating the impacts of aviation on climate.

### **Professor Alastair Lewis**

A Professor of atmospheric chemistry at the University of York, Alastair has over 25 years of experience in scientific research on the environmental impacts of transport, fuels and combustion on public health, climate change and the response of ecosystems. He is also

the Science Director for the National Centre for Atmospheric Science, and is passionate about communicating science, technology and risk to the general public.

**Dr Chikage Miyoshi**

Chika is a Reader in Environmental Systems for Aerospace at Cranfield University Academic. She is involved in developing multidisciplinary research projects with a focus on the environmental and economic elements of aviation, and brings expertise in the impact of economic instruments on aviation, including the EU Emissions Trading Scheme and carbon and fuel taxes.

**Professor Anil Namdeo**

Anil is a Professor of Air Quality Management and Net Zero at Northumbria University. His research focuses on environmental and sustainability assessment of land use, transportation and other developmental policies. Passionate about translating scientific information in easy-to-understand language, his overall focus is on developing win-win policies by providing scientific expertise to support analysis and trade-offs between carbon, noise and air quality.

**Professor Mark Westwood**

Mark is a Professor and Head of Centre for Aeronautics at Cranfield University. A technology leader and specialist in aerospace and autonomous systems, including R&D in drone and advanced air mobility sectors, he is passionate about exploring the opportunities presented by new technologies and developing them into sustainable, practical real-world applications.