

Research impact: making a difference

Revolutionising decision-making in complex multi-stakeholder environments

LSE research produced the Decision Conferencing approach to help governments and organisations make better decisions in highly complex and demanding contexts

What was the problem?

A combination of factors—multiple stakeholders and audiences, limited resources, increased scrutiny—has created challenges for problem-solving and decision-making at the group and organisational levels, which traditional models and approaches have struggled to address.

In an increasingly global and networked world, it is not unusual for organisations to span national, cultural and even professional boundaries. Some organisations are deliberately designed to work across multiple borders, problems and constituencies, yet even these organisations struggle to tackle problems and make decisions in the face of a range of stakeholders holding widely varying—and often conflicting—interests.

NGOs, industry, governments and academia are also faced with unprecedented pressure to make the most effective use of limited financial and human resources. With this pressure has come more insistence on transparency: stakeholders, the public and the media want to know not only how resources are being used, but what decision-making processes have led to—and justify—said use.

What did we do?

Over a period of 20 years a team of researchers in the LSE Department of Management has explored and refined processes and methodologies for group decision-making. Key researchers have included: Emeritus Professor of Operational Research Lawrence Phillips; Centennial and Visiting Professor of Decision Sciences Carlos Bana e Costa (1999-2010); Centennial Professor of Management Science Detlof von Winterfeldt (2009-2012); Associate Professor of Behavioural Science Barbara Fasolo; Senior Lecturer in Operational Research Alec Morton (2004-2013); and Professor of Management Science Gilberto Montibeller.

The work of this team has focused on Multi-Criteria Decision Analysis (MCDA), a group decision-making framework used to address a single challenge that has a variety of potentially viable solutions, with each solution having an array of perceived merits and drawbacks.

The MCDA framework also assumes that each solution will be perceived uniquely by individual decision-makers based on experience, perspective and particular interests. For instance, in a process where a building site must be selected from several candidate sites, a group of decision-

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makers can be expected to put different values on factors like cost, location, ease of use, and environmental compatibility.

Having such a wide range of variables to consider can potentially produce decision-making gridlock or lead to highly consequential decisions based on an ultimately erroneous mix of factors. The LSE group sought to examine and refine this framework, working on the hypothesis that multi-criteria decision models need to be simple and appropriate to a given group and task. This led to the development of 'requisite' decision modelling, in which a decision-making process is specifically tailored to solve a particular problem.

The work of the LSE team covered a range of research topics, including the psychology of preference when faced with multiple criteria and how best to structure decision-making in particularly challenging situations, e.g. highly strategic decisions or decisions with severe uncertainty about future outcomes. Members of the group also did applied research in various contexts: for example, Fasolo and Phillips in pharmaceutical regulation and Montibeller in local authorities.

Emerging from this research was an original approach to MCDA-driven group decision-making—a key concept and framework called Decision Conferencing. This approach involves a series of intensive working meetings, called decision conferences, around a complex issue in a given organisation. There are no prepared presentations or fixed agendas; the meetings are conducted as live, working sessions lasting from one to three days. A unique feature of Decision Conferencing is the creation, in the moment, of a computer-based model that incorporates data on the issue at hand as well as the judgments of the participants in the group.

What happened?

The development of Decision Conferencing, as well as other related research in this area, has established LSE as a leading centre for the Decision Sciences. The Decision Conferencing approach has become widely known and has shaped practice in the UK government and in private sector companies internationally.

Organisations where Decision Conferencing was implemented were found to engage in more participative, but also more efficient, group decision-making processes. They were also able to identify decision alternatives that maximised value-for-money, thus leading to a more efficient use of scarce resources.

"[It] was the perfect tool, to take the politics out of the debate, introduce objectivity, and to allow us to deliver a coherent, prioritised and logical 5-year programme of work."

- **NATO Admiral Richard Leaman**

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In addition, Decision Conferencing helped organisations reach decisions that were robust and defensible, leading to greater transparency. The European Medicines Agency (EMA), for instance, used Decision Conferencing to create a new drug assessment scheme that it considered to be more transparent, communicable and consistent. As a result, the EMA made revisions to the guidance template used by drug assessors across Europe.

At the national level, Decision Conferencing was used to advise on the most effective approaches for assessing public policies. Phillips co-authored the UK Government's multi-criteria analysis manual, which since its first issue in 2000 has been the central resource for non-monetary appraisal in the UK government, with 1,890 downloads from the LSE website in June 2012 alone. Montibeller also helped the UK Department for Environment, Food and Rural Affairs (DEFRA) put the model into practice by advising on its use in improving processes for prioritisation of animal diseases. Montibeller and Morton have supported the National Audit Office in the optimal prioritisation of Value-for-Money auditing studies.

Members of the LSE team have facilitated decision conferencing modelling workshops with numerous other organisations, including Allergan, Atomic Energy Authority, Coventry City Council, and the Royal Navy.

In 2009 Phillips led Decision Conferencing work with NATO's Strategic Command for Transformation, which had a very complex and highly politicised €540 million budget and 26 sovereign nations to accommodate with its decisions. The group faced a highly disparate portfolio of projects to compare, ranging from esoteric conceptual studies to new counter IED (Improvised Explosive Device) equipment for Afghanistan. NATO Admiral Richard Leaman found Decision Conferencing to be 'the perfect tool to take the politics out of the debate, introduce objectivity, and to allow us to deliver a coherent, prioritised and logical 5-year programme of work'.

The creation of Decision Conferencing also sparked a new industry for specialised consultancy companies in the UK, USA and Europe. LSE-owned decision analysis software products Hiview and Equity were marketed through the consultancy company Catalyze, and Bana Consulting in Portugal also sold the MACBETH software designed by Bana e Costa. These software products have been widely imitated and marketed.

Phillips' contribution to research in decision analysis, including the development of the Decision Conferencing approach, was recognised in 2005 with the Ramsey Prize of the INFORMS Decision Analysis Society. A 2006 paper co-authored by Montibeller won the Wiley Prize for Applied Decision Analysis.

Gilberto Montibello is a Visiting Senior Fellow in the Department of Management. His field of expertise and academic focus is Decision Analysis, in particular Multi-Criteria Decision Analysis, a set of scientific methodologies for supporting strategic decisions that involve multiple and conflicting objectives. He has more than twenty years of experience in conducting decision analytic projects for private and public organisations in Continental Europe, Britain, and South America. Client

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organisations include Defra, UK National Audit Office, World Health Organisation (WHO), Food and Agriculture Organization of the United Nations (FAO), Babcock International, Itaipu Binational (Brazil and Paraguay), and the Brazilian Centre for SMEs (SEBRAE), among others.

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Lawrence Phillips is Emeritus Professor of Operational Research in the Department of Management and Director of the Decision Capability Group. He specialises in helping decision makers to analyse complex issues involving uncertainty, risk, and multiple, conflicting objectives. He often works with groups of key players using a problem-solving process called decision conferencing.

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