

Analysis under Uncertainty for Decision Makers Network Action Plan 2018-2020

1. Background

The Analysis under Uncertainty for Decision Makers Network is, at present, an informal network which has evolved from a number of meetings of like-minded set of academics, policy makers and private sector practitioners working on different aspects of the Decision Making Under Uncertainty space since May 2015.

This far, the networks main legacy has been to maintain its focus on seeking to better understand the problem space that members and practitioners want to address. Following a number of workshops¹ it has now been decided that the Network needs to move from its exploratory mode to a more deliberate and bounded understanding of what it does and how it fits within the crowded Decision Making under Uncertainty community. This is what this Action Plan proposes to do.

2. Mission and What Sets the Network Apart from other Networks

The Analysis under Uncertainty for Decision Makers Network Mission is to *seek to work across disciplines, domains and sectors to better understand and characterise what research and best practice can be developed around analysis and decision making under uncertainty in order to become a UK national leader and be recognised internationally in this field.*

The network will operationalise this mission by²:

- Characterising the problems that Decision Makers and the Analytical community face in the decision making process from an end-to-end perspective by placing the Decision Maker at the centre of the work;
- Better understand how to address these problems by sharing current best practice;
- Develop capacity for better Analysis and Decision Making within our members' communities with an emphasis on experimental and immersive processes which will involve the utilisation of novel tools to generate insight as to how to learn from such processes; and
- Work with other communities operating in this space to develop a network of networks.

Though the network will seek to listen and be humble in as inclusive, cross-disciplinary and multi-domain perspective as possible - it will seek in the immediate term - to focus its activities in the following sectors: (1) Defence and Humanitarian Planning and Emergency Response; (2) Energy; (3) Water; (4) Insurance and Finance; and (5) Public Policy. It will also seek to work with at least one cadre of decision makers in these communities to allow coherent longitudinal study to better understand decision making.

The Networks evolving *Modis Operandi* will be to:

- (1) Start with what is useful for 'good' decisions to be made in a specific context;
- (2) Work backwards to what decision makers need to understand and communicate to relevant audiences around that decision;
- (3) Develop the relevant evidence, methods, tools and approaches to address the decision makers needs in order to allow the appropriate framing of how the uncertainty should be characterised in that specific situation; and
- (4) Generate the best practice and recommendations from work across disciplines, domains and other sectors and work being undertaken in other networks as to what has / is likely to work in such a specific context.

¹ <http://au4dmnetworks.co.uk/events-timeline>

² <http://au4dmnetworks.co.uk/what-we-do>

3. Proposed Activities

The AU4DM Networks proposed Activities will be to:

- Develop at least six Strategic Partnerships;
- Network and Convening;
- Develop Sectoral Evidence of Best Practice Champions;
- Collating and Cataloguing Tools to develop insights on Decision Making Uncertainty;
- Developing and Promoting Best Practice around Decision Making; and
- Training and Capacity Building.

These are expanded upon below in terms of activities and outputs.

3.1 Develop at least six Strategic Partnerships

The Network will seek to reach out to existing initiatives working in the area of decision making under uncertainty. It will focus its limited resources on working with a selection of key bodies across the UK to leverage reach and share learning for the benefit of all sectors via public reports and events.

Outputs:

- The Network will work with the following six strategic partners - [ALL TBC'd]: (1) NESTA - What Works and Alliance for Useful Evidence; (2) Defence Science and Technology Laboratory; (3) Energy Systems Catapult; (4) The Lighthill Network; (5) START Network; and (6) Government Office for Science.
- The Network will seek to develop a Network of Networks which will be curated using its Website with a view to working with: (1) RCUK / IUK initiatives in this area which for the time being are the M2D and CRUISSE Network³; and (2) Other Networks operating in the Decision Making under Uncertainty space⁴.

3.2 Network and Convening

The Network has been very successful at the collation of a diverse community which reaches a myriad of disciplines, domains and sectors both in the UK and to a certain extent internationally. Over 150 people from 80 organisations have participated in our workshops and associated initiatives. We propose to grow the network and exchange information more efficiently within our network. The network will support members to share learning with each other through face-to-face, on-line, online-offline events, training and social media interactions.

Outputs:

- Hold an annual 2 day event every February, every year to seek to: (1) take stock of where the network as got to; and (2) where the network needs to evolve to serve in the best interest of its members in order to update Section 2 of this document;
- Hold a number of local satellite events which will seek to evolve the Networks agenda in line with those prescribed in section 2 of this document;
- Seek to develop tools and platforms which will allow the network to scale in as friction-less manner as possible which might include the development of a 2 sided network; and
- Triple the size of the community from 150 to 450 by January 2020.

3.3 Develop a number of 'Sectoral - Evidence of Best Practice Champions'

Agency in message dissemination is vital in allowing efficient proliferation of learning amongst sectors and domains. To this end, the Network will seek to create 'Sectoral Evidence of Best Practice Champions'⁵ who will

³ <https://blogs.exeter.ac.uk/models2decisions/> and <http://cruise.ac.uk/>

⁴ A non-systematic review suggests that the following might be interested: Society for Decision Making Under Deep Uncertainty; Operational Research Society; Naturalistic Decision Making Community; INCOSE UK - Energy Systems Interest Group; Society for Judgement and Decision Making London Judgment and Decision Making Group; Whole System Energy Modelling Initiative.

⁵ The mechanism for nomination, selection, fulfilment of the role and tenure / staggering of tenure to maintain institutional knowledge of a cadre of 'Sectoral Evidence of Best Practice Champions' is still to be agreed and will require further consultation with Network members.

be considered thought leaders in their sectors and will be responsible for: (1) fostering leadership and collating best practice from within their sector as to analysis, decision making and the employment of decision making tools; (2) ensuring that best practice is catalogued and that an exchange of knowledge takes place between different sectors; and (3) the exchange of new knowledge is then as efficiently diffused within sectors.

Outputs:

- Select, train and develop a set of *Sectoral Evidence of Best Practice Champions* for each of the sectors that the Network intends to specialise in - see section 3.1, above; and
- Ensure that mechanisms are put in place to allow the diffusion of best practice to take place between the '*Sectoral Evidence of Best Practice Champions*' and then within their own sectors.

3.4 Collating and Cataloguing Tools that provides Decision Support under Uncertainty

One of the most requested objectives of the Network is to develop a catalogue of the existing tools, methodologies and best practice around decision support for decision making under uncertainty. The Network will therefore, via its network or networks, seek out, collate the tools that are available for decision support, conduct a systematic review of research that underpins those tools, what constitutes their respective strengths and weaknesses in their application with a view to developing a catalogue of tools. It will seek to build on what is already in existence rather than initiate a new agenda.

Outputs:

- Using the DSTLs Human Environment Analysis and Reasoning Tool⁶ and Jan Kwakkel's tentative taxonomy of approaches⁷ the Network will undertake the collation and cataloguing of decision under risk and uncertainty tools and case studies; and
- Consider the best mechanisms and channels to disseminate the work that is collated in the catalogue in order to reach as wide audience as efficiently as possible.

3.5 Developing and Promoting Best Practice around Decision Making

The Network will seek to work with both Strategic partnership organisations and others to develop and promote best practice around decision makers via networking and convening through a number of platforms and channels.

Outputs:

- Understand what Decision makers want based on the Modis Operandi outlined in Section 2;
- Specialise in developing effective immersive and experiential processes to allow the analysis and decision making community to understand each other's needs better and trial what works in different contexts via the cadre of decision makers; and
- Create novel and effective methods to allow cross-community learning from simulations, immersive and experiential process such as but not limited to visualisation tools, graphics, information design etc.

3.6 Training and Capacity Building around best practice in the Decision Making Under Uncertainty Space.

The Network will seek to undertake training via online webinars and residential courses which will be prioritised by consultation with the community. It will seek to develop one of the below each, per year.

Outputs:

- Develop capacity amongst all communities to better characterise and communicate the types of risk and uncertainty that pervade different problems, decisions and contexts in different sectors; the tools available to address them and the extent to which certain aspects of futures are unknowable and degree of option lock out that might take place when taking a specified or emergent course of action;

⁶ http://www.act.nato.int/images/stories/events/2011/oa_ws/16June11-01_Fenstermacher.pdf and http://www.ismor.com/32ismor_archive/workshops/32ismor_heart_guide.pdf

⁷ Presented at the Society for Decision Making Under Deep Uncertainty Workshop on 13th November 2017.

- Create awareness of the mechanisms which might be developed to allow greater and more effective dialectic processes and the development of 'safe spaces' for decision making and analysis actors to convene in order to better empathise and understand each other's needs in addressing different problems in a variety of situations and contexts;
- Develop capacity in decision makers in terms of the use and capability of different tools for decision making under uncertainty - their strengths, weakness, appropriate application and the implications of the outputs in terms of supporting decisions that are being sought such as: range of options; the risks they want to better understand and the understanding of the trade-offs when making one decision over another? This might extend to how structured argumentation might be developed to allow the generation of additional insights between different perspectives of different communities with varied ideologies;
- Develop capacity in the analytical community to understand decision makers in terms of - the issues, contexts, limited bandwidth, capacity to assimilate information, heuristics and biases and most effective way to convey substantial analysis in as effective manner as possible to them; and
- Create a 'Wikki based' open source 'Code of Practice' for respective needs of different actors regarding the different aspects of the decision making value chain from problem framing through to communication to different audiences - for different disciplines, domains and sectors.

4. Operational Imperatives to 2020

The network has funding to hold a number of activities over the period 2018 to 2020 which are outlined below. As a function of this action plan the events have been re-aligned to match the mission and operational requirements made in section 2. It is proposed that during the undertaking of these activities a more sustainable, long term business model(s) will be explored with potential partners in order to allow the fulfilment of the articulated mission in section 2 to be embedded in a more strategic time frame.

- **3rd May** - Day long Workshop - Shard, London: Do we have common perceptions of Uncertainty?
- **Summer 2018** - 2 Day long Session **TBC'd** - Capacity Building Course around Tools for Decision Making Under Uncertainty via Network Partner organisations with Network members selecting content.
- **Autumn 2018** - Evening Session - **TBC'd** - Shard, London: Decision Makers Only Workshop on what they want from the Analytical Community in partnership with IoD
- **Autumn 2018** - Day long Workshop **TBC'd** - Simulation and Immersive Processes Outputs to develop better learnings – Visualisation Tools
- **Spring 2019** - 2 Day long Session **TBC'd** - Network Annual February Event
- **Summer 2019** - 5 Day long Session **TBC'd** - Problem Analysis Sprint Session with Industry presenting real problems and practitioners seeking to resolve them in a week long engagement.

Ongoing during this will be a **Tools and Best Practice Cataloguing** and **Network of Networks** outreach exercise which will be mutually dependent and for which a corporate sponsor will be sought. In the case of the former, Decision Making Under Uncertainty tools, methods and best practice will be collated catalogued and disseminated to the Network via a number of online and offline channels. In the case of the network outreach other networks will be engaged with in order to allow a critical mass to be developed around developing common understanding of the decision making under uncertainty space and where each network fits.

Concurrently, the AU4DM Network is also developing an **ESRC Research Centre for Policy Decision Analysis** funding application. The Centre is to be the world's leading research centre for the creation and deployment of interdisciplinary methods for public policy and management decisions. There will be connections developed between the proposed research undertaken for the ESRC Centre and the AU4DM Network.

This action plan has been subject to consultation with the Network Community and will be updated after every annual February workshop.