

IOAF WG5 workshop on Interdependencies 4 July 2017

Present

Neil Carhart, University of Bristol
Kristen Guida, LCCP
Phil Sivell, UKCIP
Roger Street, UKCIP (chair)

John Dora, John Dora Consulting Limited
Vicky Hayman, UKCIP
Charles Snead, TfL
Alison Walker, HS2

Aim

To explore within the IOAF WG5 the value and utility of the proposed matrix approach as a management tool to help identify and assess infrastructure interdependencies.

Background

Based on current literature and expert advice, UKCIP has developed a matrix approach to help operators identify and assess dependencies and interdependencies both within their organisation and with other infrastructure sectors and services. This approach looks to align with, and contribute to, existing corporate risk management plans and to provide evidence for the consideration of priority actions and investments.

A series of linked spreadsheets are suggested to assess functional, spatial and geographic interdependencies which can then be combined to indicate total vulnerability. A range of interdependencies are included; these can act as prompts for consideration and there is flexibility to add/remove cells as required. By using expert knowledge and judgement within an organisation, the aim is to provide a relatively simple, coarse-scale yet quantitative assessment to indicate where risks are high and where action may be needed.

Notes from the discussion

- The matrix approach could provide a rigorous method for considering a broad range of dependencies and interdependencies (beyond spider diagrams, traffic light systems etc.) helping to give an informed strategic overview. Organisations have a sense of where they are vulnerable, but this approach could help tease out tacit knowledge to identify and highlight key areas that may need further evaluation.
- The spreadsheets can be used at a business unit or corporate level but do need to fit within current management structures and be integrated with existing work (not another new tool). They can be used to identify both risks and opportunities, and can be expanded to focus on specific areas of interdependency relevant to a particular organisation. They can be used to

address adaptation and resilience to all drivers of change, not just climate change, or alternatively can be used to assess the implications of enhanced climate change.

- Providing input to the spreadsheets can be done either centrally e.g. at a workshop, or asynchronously. Either method could provide a starting point for gathering information on paper for on-going critique. The sharing of information can help bring people together, identify who in an organisation knows what, and provide a common basis for discussion (overcoming barriers with taxonomy and language).
- Completing the spreadsheets could be challenging. Any information in cells would need supporting evidence behind it to help justify the score. In some cases, more information may be needed or expert judgement applied. Blank spaces are useful; they could indicate an absence of interdependency, or an area where more evidence needs to be collected.
- Acknowledging that this is a complex area, not all information can be captured at once, and there is a need to identify a useful starting point: possibly one-way dependencies, then two-way interdependencies, then unexpected combinations. Or focus on specific business sectors with known 'headline' interdependencies. The process could encourage participation by appropriate in-house experts; staff at the operational level tend to have the more detailed information.
- Looking forward, if the IOAF can identify an approach that a few organisations could use successfully, wider uptake may be encouraged, for example within the ARP process. The recent ARP2 reports were very light-touch in their consideration of interdependencies. This approach provides a means of looking at sensitivity to change and changing levels of vulnerability within the context of infrastructure interdependencies. In the longer term, it could also provide a common basis for a discussion between organisations to consider risks and responsibilities and to drive action across the whole community.

Next steps

There was agreement from WG5 that this matrix approach could potentially provide a practical means of identifying and mapping interdependencies and of capturing supporting evidence. It could be tailored to meet specific organisational requirements, provide a focal point for starting the discussion and be used as an on-going source of information.

Based on this, WG5 is now looking to further explore the utility of this matrix approach and to test the concept more widely within the IOAF. A workshop is suggested to be held immediately before the next IOAF meeting (Oct 2017) for IOAF members and possibly other invited experts. As a first step, a strategic approach across one or two sectors and/or functions (e.g. city) will be considered: a focus on rail transport was suggested but with experts from other sectors contributing. Future events could focus on water and/or energy.