Prioritisation: a difficult word, and technique, to master

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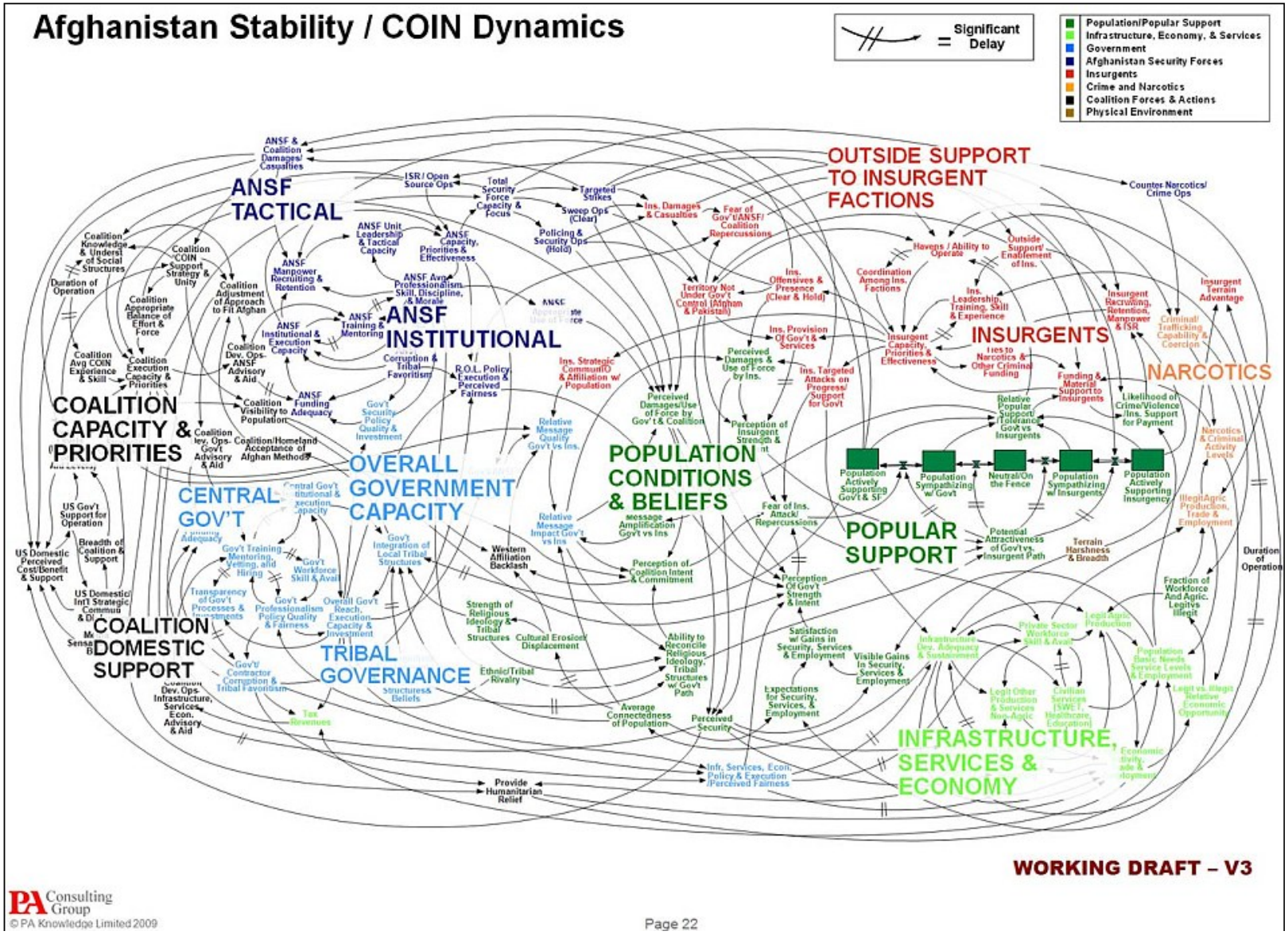
My favourite road sign is 'Falling Rocks'. What exactly am I supposed to do with that information? They may as well have a sign saying "Random accidents ahead“...Jimmy Carr



'When we understand that slide, we'll have won the war,'

Gen. Stanley McChrystal, the US and NATO force commander

- *We are in an economic climate where LHD personnel are facing dire budget cutbacks while simultaneously dealing with issues like H1N1, chronic diseases, and natural disasters…LHDs are faced with an infinite number of competing health issues to address, while keeping in mind several external considerations such as urgency, cost, impact and feasibility, to name just a few.*

- *Fortunately, a number of prioritization methods specifically designed to assist agencies with this very challenge have been developed and widely used in a range of industries including public health. When faced with these tough decisions, employing a defined prioritization technique can provide a structured mechanism for objectively ranking issues and making decisions, while at the same time gathering input from agency-wide staff and taking into consideration all facets of the competing health issues*

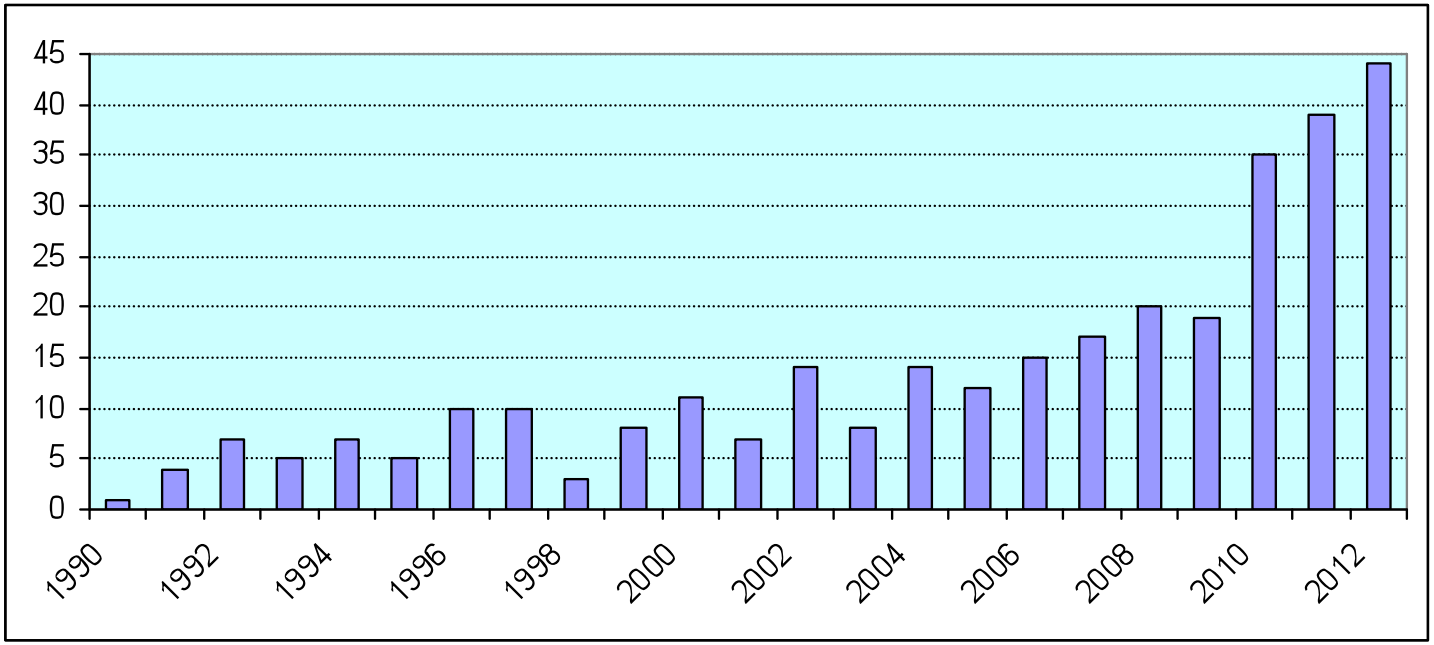
NACCHO, 2010

- Prioritization: the act of prioritizing
  - To arrange or deal with in order of importance

    - ***"Usage Note: …"****prioritize"* is often regarded as corporate or bureaucratic jargon. Resistance to *prioritize* has fallen dramatically in recent decades. In 1976, 97 percent of the Usage Panel rejected its use. By 1997 53 percent of the Panel approved the use of *prioritize"*

The Free Dictionary

Scope



Number of publications by year with “prioritization” in title, and “health” (in all fields). Only in PubMed

Some basics I

- *"The greatest challenge to any thinker is stating the problem in a way that will allow a solution"*

  – Bertrand Russell

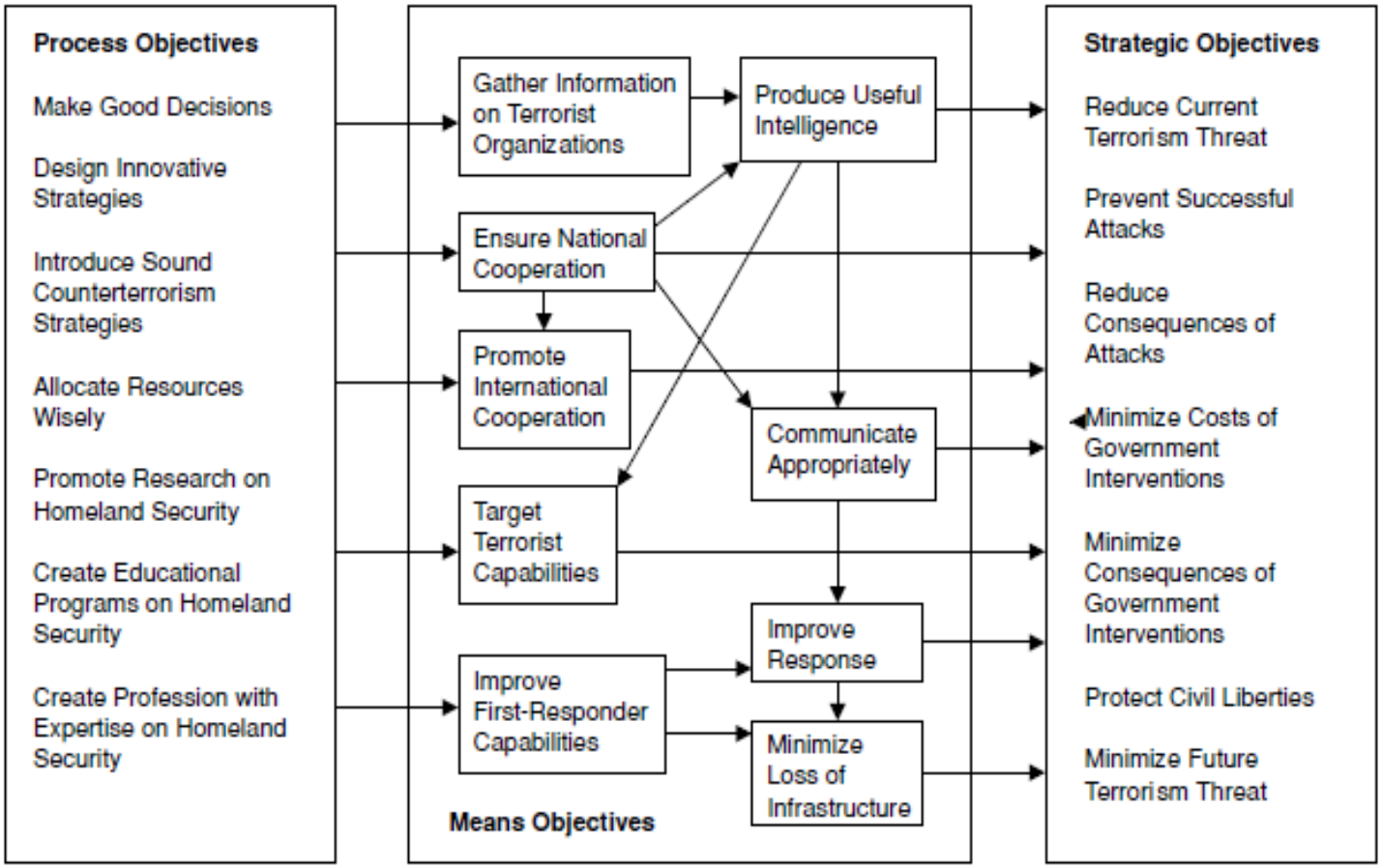
- *"The biggest error made in addressing a problem is to address the wrong problem"*

  – Keeney 2002

Some basics II...

- Indicators
  1. Number of labs
  2. Diagnostic techniques used
  3. Occurrence of county committees
  4. …

For quantitative assessments, evidence shows that individuals give greater weight to means objectives than would be warranted based on the value trade-off between the ends objectives (Fischer et al., 1987).

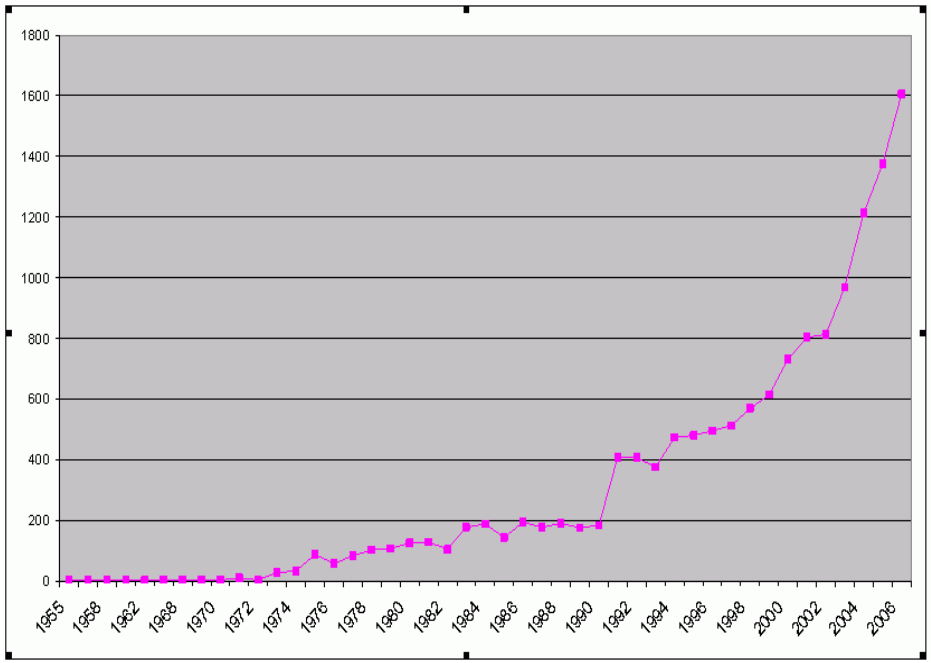


Keeney and von Winterfeldt (2011)

- Help from DSS
  - Humans can only cope with four “chunks” of information
  - To pursue both the technical and social aims (all the stakeholders have to give their aware contribution) (De Feo & De Gisi, 2010).
  - To provide defensible and repeatable results which link budget expenditure directly to programme value

- **Some of the MCDM methods are:**
  - Aggregated Indices Randomization Method (AIRM)
  - Analytic hierarchy process (AHP)
  - Analytic network process (ANP)
  - Data envelopment analysis
  - Decision EXpert (DEX)
  - Dominance-based rough set approach (DRSA)
  - ELECTRE (Outranking)
  - The evidential reasoning approach (ER)
  - Goal programming
  - Grey relational analysis (GRA)
  - Inner product of vectors (IPV)
  - Measuring Attractiveness by a categorical Based Evaluation Technique(MACBETH)
  - Disaggregation – Aggregation Approaches (UTA*, UTAII, UTADIS)
  - Multi-Attribute Global Inference of Quality (MAGIQ)
  - Multi-attribute utility theory (MAUT)
  - Multi-attribute value theory (MAVT)
  - New Approach to Appraisal (NATA)
  - Nonstructural Fuzzy Decision Support System (NSFDSS)
  - Potentially all pairwise rankings of all possible alternatives (PAPRIKA)
  - PROMETHEE (Outranking)
  - Superiority and inferiority ranking method (SIR method)
  - Technique for the Order of Prioritisation by Similarity to Ideal Solution (TOPSIS)
  - Value analysis (VA)
  - Value engineering (VE)
  - The VIKOR method.[24]
  - Fuzzy VIKOR.[25][26]
  - Weighted product model (WPM)
  - Weighted sum model (WSM)

MCDM is getting so common that…



Bragge et al., 2008

Table 1. Twelve common mistakes in making value trade-offs.

Mistake 1.	Not Understanding the Decision Context.
Mistake 2.	Not Having Measures for Consequences.
Mistake 3.	Using Inadequate Measures.
Mistake 4.	Not Knowing What the Measures Represent.
Mistake 5.	Making Trade-Offs Involving Means Objectives.
Mistake 6.	Using Willingness to Swap as a Value Trade-Off.
Mistake 7.	Trying to Calculate Correct Value Trade-Offs.
Mistake 8.	Assessing Value Trade-Offs Independent of the Range of Consequences.
Mistake 9.	Not Having Value Trade-Offs Depend on Where You Start.
Mistake 10.	Providing Conservative Value Trade-Offs.
Mistake 11.	Using Screening Criteria to Imply Value Judgments.
Mistake 12.	Failure to Use Consistency Checks in Assessing Value Trade-Offs.

Keeney, 2002

LETTERS

Letter to the editor: Prioritisation of infectious diseases in public health: feedback on the prioritisation methodology, 15 July 2008 to 15 January 2009

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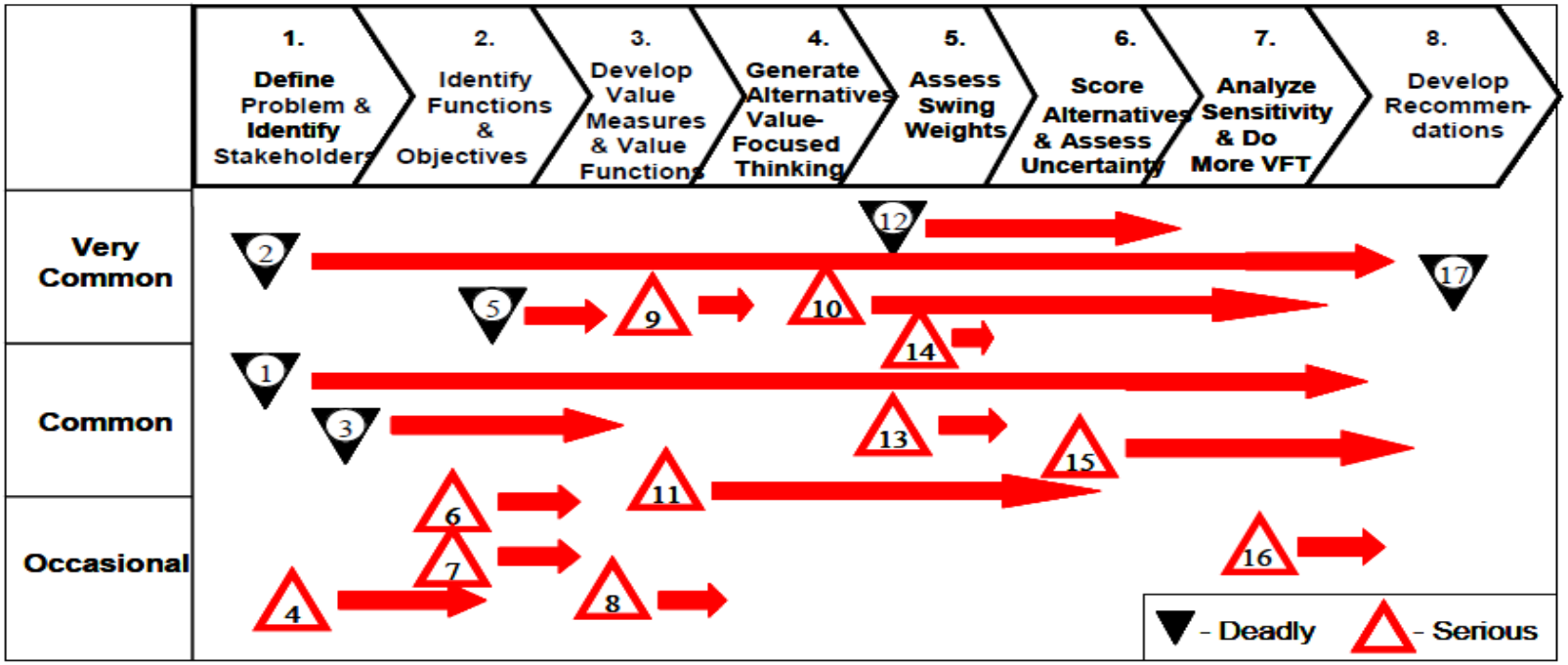
Del Rio Vilas et al., 2011



Dillon-Merrill et al., 2006

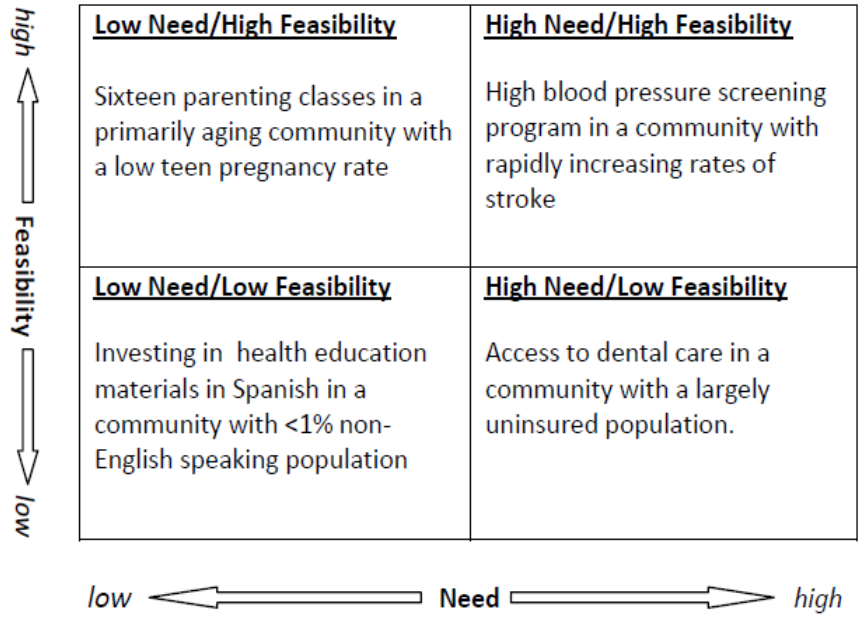
The importance of time

– Decision frameworks often fail to assess*:
  - The relevance and definition of the time horizons the impacts of gaps/threats are realized
  - The relevance and definition of the time horizons as considered by different stakeholders on the same gap/ threat or by the same stakeholders on different gaps/ threats
  - Decision of behalf of society are discounted at a lower discount rate
  - Different domains or criteria may require different treatments in terms of discounting (monetary outcomes discounted at a different rate than health outcomes (Hardisty and Weber 2009)

*Rout and Walshe, 2013

Common applications in health

- HTA
- Health services prioritisation
- Disease prioritisation
- Health research prioritisation.
  - WHO 2010.
  - Of 230 exercises found
    - Most of the exercises were on infectious and communicable diseases
    - No gold standard for prioritisation methodologies
    - Stakeholder meetings most often
    - Rare the use tools, with in house tool development
    - Need for normative work in this area



NACCHO, 2010

Use of criteria as part of the process of setting research priorities	Yes (19, 31%)	No (43, 69%)
Use of established tools as part of the process of setting research priorities	Yes (7, 11%)	No (55, 89%)

Examples of applications

- *"We have to identify and prioritize the risks-understanding the threat, the vulnerability, and the consequences. And then we have to apply our resources in a cost-effective manner..."*

$$\text{Risk} = P_{\text{threat}} * P_{\text{vulnerability}} * [-u(\text{conseq.})]$$

(Keeney and von Winterfledt, 2011)

$$\text{Vulnerability}_i = \text{susceptibility}_i * \text{exposure}_i * (1-\text{resilience}_i)$$

(Briand et al., 2009)

Setting priorities in communicable disease surveillance (WHO 2006)

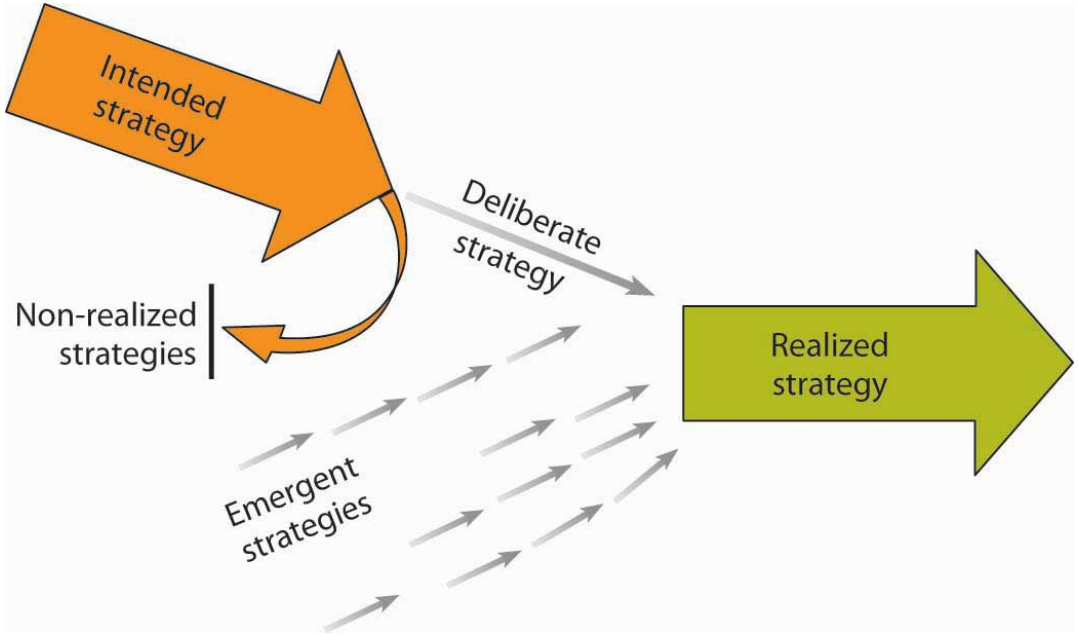
- Developing and strengthening communicable disease surveillance and response at the national level requires a substantial and long-term commitment of human, financial and material resources. This investment begins ideally with a **systematic review of the national priorities for surveillance.**

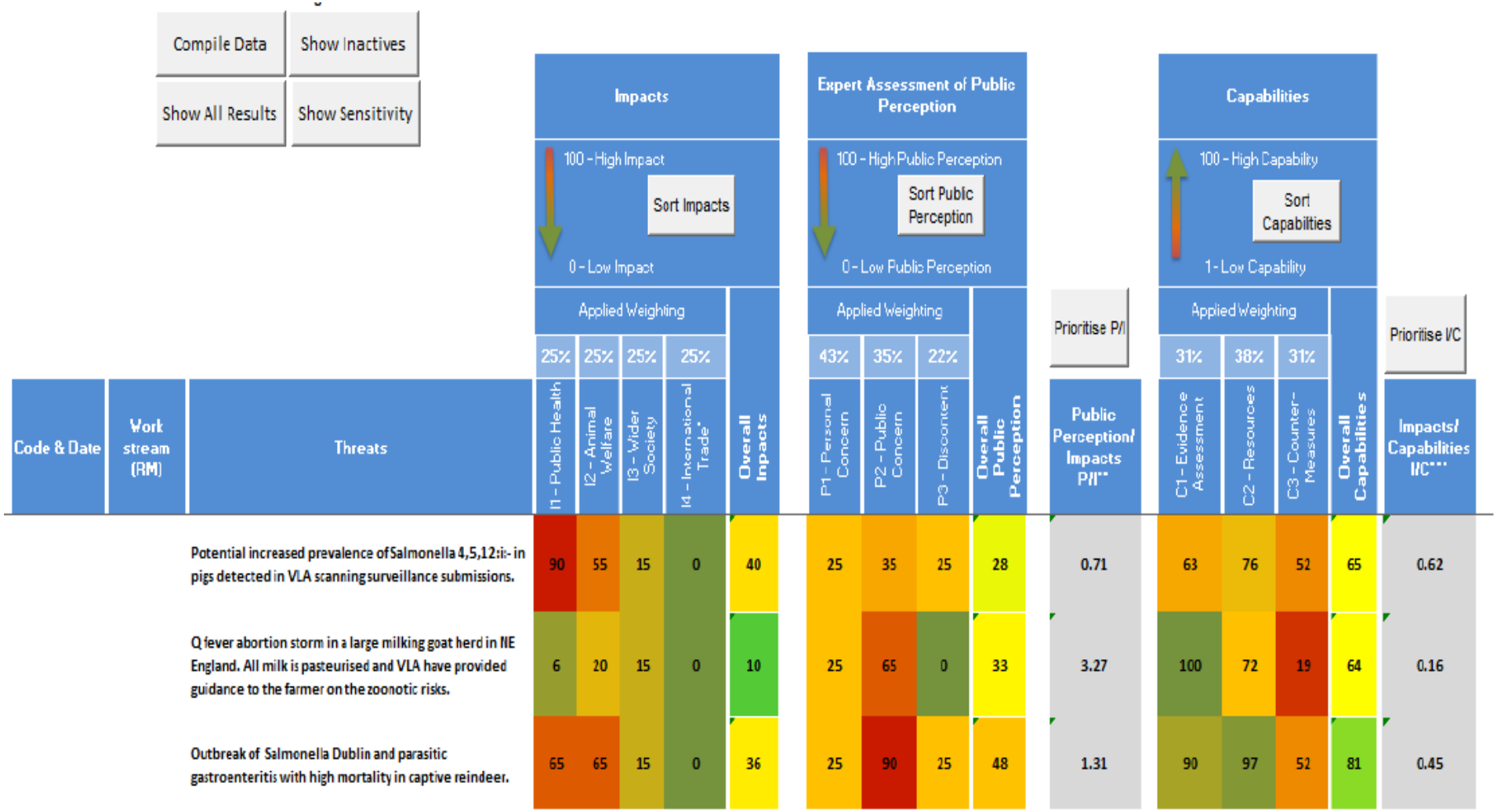
- These guidelines aim to assist public health professionals at national level in the process of prioritization of communicable diseases/health events for public health surveillance.They represent a prototype for prioritization of communicable diseases, and describe the different steps in a prioritization exercise using a consensus methodology based on the **Delphi method**.

- These guidelines propose **a three-day plenary workshop** for the prioritization exercise.In this way, scoring is done individually by all participants but at the same time and in the same setting. This allows clarification of the objectives, the criteria, the list of diseases and the process. The results are calculated immediately, which allows discussion and rescoring with the objective to reach a better consensus.

- Surveillance systems are usually developed over time, with new diseases being added and few removed. This often results in a long list of diseases for surveillance, impairing the ability of the system to perform efficiently. In many surveillance systems data are collected which never result in publichealth action, **whereas new threats are considered insufficiently or not at all.**

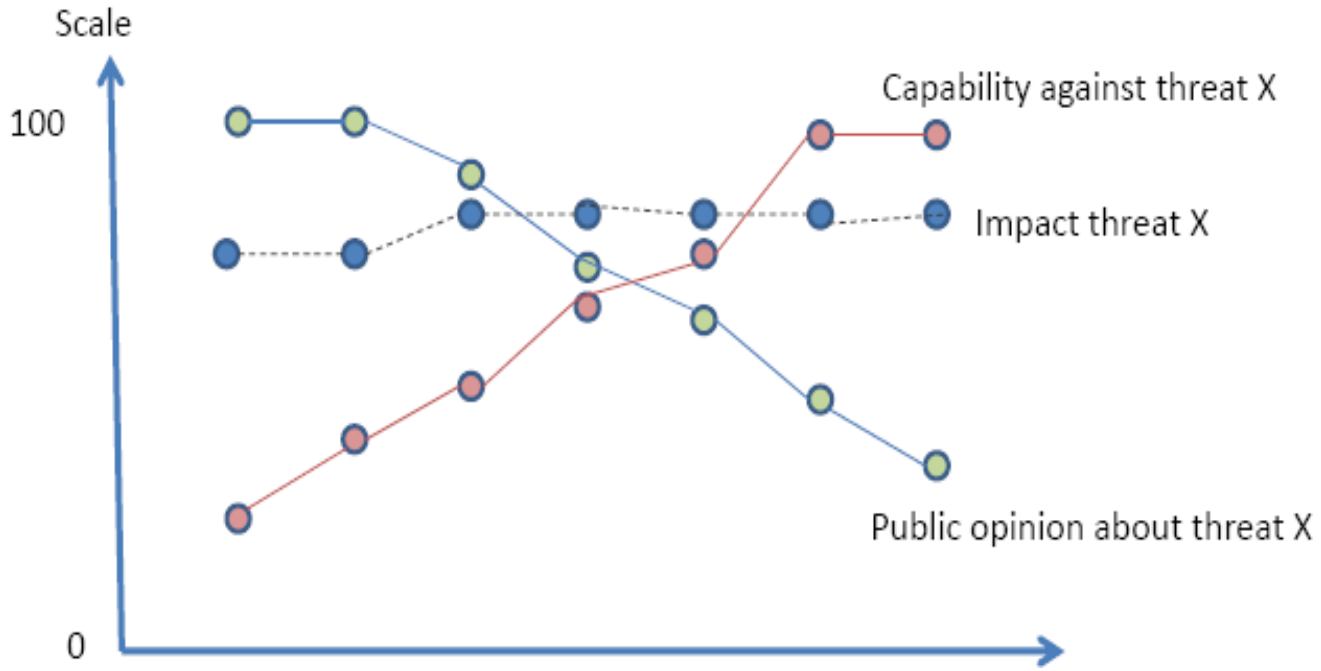
Can we apply prioritisation beyond strategic frameworks?





Del Rio Vilas et al., 2013

A possible future



Thanks

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