



# THE SOFT APPROACH

LOUISE MAYNARD-ATEM

The end of March marks my first full year in government, and a good time to reflect on what I have learned, my changing perceptions of O.R., especially soft O.R., and what are the next steps for me on the Fast Stream.

I always try to avoid clichés but the past year really has flown by; it is hard to believe that this time last year I was in a research laboratory wrapping up my final experiments and adding those last minute finishing touches to my thesis. It has undoubtedly been a challenging year with a very steep learning curve, but I feel even more enthused about O.R. now that I've learned more about what it actually is and had the opportunity to use it in a practical setting.

In my preparations for taking up this role I tried to read up on as many O.R. techniques as possible and came into the office on my first day keen to throw my knowledge at any and every problem that came my way. I soon realised though that it would be my soft O.R. skills that would be tested to a much greater extent for the duration of this post.

I have worked on projects ranging from the review of the marginal rate policy (a punitive measure that attempts to manage the number of emergency admissions in hospitals), quantifying the differences in complexity between specialist and non-specialist hospitals and the development of new national currencies for different clinical procedures. Whilst all of these projects have required some level of technical analysis -including regression, forecasting and cluster and factor analysis (the swotting up came in useful)- every project was consistent in that it required problem structuring techniques as a first step. In order to produce the most effective analysis it is important that everyone working on the project shares a common understanding of the aims and desired outcomes with the relevant decision makers. I found soft systems methodology and strategic option development analysis recurred frequently during my work, and appreciate that the further you progress within government, the more important these skills will become.

I did have my concerns after my first month here in the Department of Health, primarily because I wasn't building complex models or doing large amounts of difficult maths and stats. However, after spending a year here, I now feel that this post has been the perfect introduction into the working world of O.R. as it would have been difficult to gain and hone these skills outside of a working environment. I think that regardless of where you end up working, be it public or private sector and to a certain extent academia, you will always have various stakeholders and a question to answer or problem to solve. Understanding the question you are being asked and the ability to manage expectations are skills that all O.R. analysts should possess. Soft and hard O.R. techniques needn't be used in place of one another, but rather in conjunction with one another at various stages of the problem-solving cycle.

For my next post, I would definitely like to join a team which is largely technical and has a substantial O.R. presence, if only to experience that variation of O.R. that goes on in government. The skills I have gained (and continue to do so) from my first post will undoubtedly be invaluable to me wherever I end up.

## Problem Page

Given the very positive response to my last problem page, John and I decided it would be a good idea to make them into a regular feature, so here is the first of five puzzles to come. The linear programming problem I gave you all to solve was really very straight forward, especially since I told you which technique to use. This time around, I'm leaving the choice of technique entirely up to you and I look forward to reading your solutions.

I'll be publishing the best solutions to each of the problems once all five questions have been set and who knows, there might even be a prize for the person who submits the best set of five responses.

As always, my email address is Louise.Maynard-Atem@dh.gsi.gov.uk and I look forward to hearing from you. Best of luck!

## Puzzle #1 - Survivor

<b>Food</b>			
weight (kg)	3	5	8
survival (pts.)	10	20	25
<b>Water</b>			
weight (kg)	5	8	12
survival (pts.)	10	20	25
<b>Shelter</b>			
weight (kg)	5	8	12
survival (pts.)	5	15	20
<b>Defense</b>			
weight (kg)	1	2	3
survival (pts.)	5	15	19

Table 1

Getting lost while hiking in the wilderness is a dangerous situation to find yourself in. And making your way back to civilization is a difficult task that uses up resources quickly. What you decide to take with you while making the journey back to civilization can determine life or death.

Table 1 shows all of the items that are available to you that will aid you in your hike out of the wilderness. Containers of food and water will give you energy, shelter will protect you from the elements, and defence will protect you from wild animals. Each item has a weight indicated by the red number and each item has

survival points indicated by the green number. You must take exactly one item from each of the four categories (Food, Water, Shelter, Defence). Unfortunately, the backpack you have has a maximum capacity of 25 kg. Your chance for survival is calculated by adding all of the survival points together from the items you choose to take with you.

What is the maximum number of survival points you can achieve?

<OR>

## O.R.@BA

**NIGEL CUMMINGS**

Iain Reynolds, an O.R. Consultant at British Airways, recently gave a presentation for our education and careers division concerning the whys and wherefores of working in O.R. at British Airways (BA).



*Iain Reynolds*

Iain spoke about the remarkably diverse range of projects he had undertaken since joining in October 2012. As a student he had seen how O.R. could make an impact on the world around him. He studied at Cardiff University and obtained a BSc in Mathematics and an MSc in Operational Research and Applied Statistics.

He said he wanted to embark upon a career which made the most of his academic qualifications and it seemed to him that a job at BA fitted his expectations. The scale of operation at British Airways was

immense, he said, every year the company carried over 32 million passengers to 175 destinations on a fleet of over 250 aircraft.

Some of the challenges it had to address included compliancy issues, fuel emissions, carbon dioxide deficits, carbon dioxide tariffs and the efficient eco-aware operation of BA's fleet of aeroplanes. The Department also had to work closely with business and airline partners to ensure the results of its research were put into operation within the business. They were also closely involved with Heathrow's ambitious expansion plan.

Reviews had to be undertaken as to the life cycle of the fleet in operation too, this was not simply a matter of how long the aircraft would last in service, but also in evaluating the cost benefits involved with selection of new additions to the fleet. Was there any advantage for example in opting for more fuel-efficient but larger planes if there were going to be problems in fully occupying all seats available for the flights they made, or would it be better to have a mixture of plane sizes and fuel efficiencies, to provide a better overall service with a reasonable degree of economy.

In conclusion he felt that a job in the O.R. department at BA would provide a variety of interesting challenges well suited to the problem solving capabilities of O.R. personnel.

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