

An introduction to management

Analytics support management decision making.

But is it the data or the people that count?

Case evaluated:

Quantifying 'Gut feel' A Decision-Science Approach to Assessing UK Space Capabilities

Intervention context:

1. What is the situation or problem context?

The need for evidence to support decision-making in the space sector.

“unclear sector boundaries, outdated industry classifications, and limited data for strategic planning (especially in emerging markets). When decisions rely solely on expert instinct, they can be hard to justify or compare.” p8

2. What people are involved and who do the analysts engage with during the intervention?

Industry, academia and government

“235 representatives from 110 organisations” p8

3. What sort of data is available?

22 capability roadmaps, produced during an earlier project.

Expert instinct – hard to justify and compare. Opinion-based with the potential for polarised views. At page 10 it is noted that these are “informed opinions”, and we know (see response to question 2) that they are provided by 235 different people from 110 organisations.

Translation from business problem to analytics problem:

4. What is the problem that is being addressed?

Turning “‘gut feel’ into something that can be tested, shared, and examined alongside more robust evidence” p8. The article is not specific about the decisions that need to be made but expresses the desire to be able to incorporate expert opinion into the decision process, alongside more objective, factual evidence.

5. What sequence of methods or tools is used?

Decision Conferencing using MCDA (Multi-Criteria Decision Analysis)

6. What is the main analytic technique?

MCDA. The article comments (p8) that MCDA is good for “tackling complex choices when evidence is scarce and opinions differ.

Delivery and evaluation:

7. Can you describe the rational, systematic approach taken?

The MCDA process requires that participants score options against agreed criteria. In this case there are two categories of criteria, benefits and deliverability. Full details are shown in table 1.

Overall, the process allows intuitive judgements to be structured in a transparent way. The structuring also allows comparisons to be made. The detailed method is described at page 9 and it is noted that within the process “participants can visualise trade-offs and explore assumptions openly.” p9.

Documenting the process provides an audit trail that may be used to evidence how the comparisons were made.

8. What type of output is produced and what does it enable the users to do?

The results section (p9) records that “14,000 data points were aggregated, clear patterns emerged.” The patterns indicated where confidence was high (based upon consensus amongst experts). A visual output is shown at page 10, with key insights narrated in the text above. Reading this text whilst referring to figure 1 we can get a taste of how the visual would support dialogue amongst the experts participating in the decision conference.

9. How well is the output received?

This is not explicitly addressed. However, it is noted that “these outputs provided a transparent foundation to improve discussion” (p10) and high-level insights are recorded.

Later, on page 10 it is noted that “[p]articipants valued the process”.

At page 11 the impact section states that the output “[helps] decision-makers navigate uncertainty with greater confidence”.

10. How successful do you think the project was?

Based upon participant satisfaction (see response to question 9) and positive comments about strengthened collaboration* I believe that the project was a success. It's selection for publication in the “Impact” magazine is also an indication that the

intervention was considered useful. It is also suggested that the project “demonstrates the broader value of Decision Conferencing to analysing expert judgement” p10.

*It is noted that the structure of the output “helped participants see where views aligned and where they diverged. This transparency supported more informed conversations and strengthened collaboration through the Space Partnership.” p10.

11. If you were the analyst, what might you do next or how might you improve your output?

Similar interventions

Draw upon the lessons learned to inform similar future interventions. In particular, early attention to ensuring clarity of criteria, addressing representation weighting and including swing weighting are identified (p10) as actions that would improve the output. Later (p11), integrating cost data is also identified as a potential improvement. The within-intervention improvement regarding sequence randomisation should be retained.

Next steps – further dialogue and further analysis

At p11 it is noted that the outputs offer a “**starting point for discussion**” rather than a substitute for detailed analysis”. The next steps section reiterates that the output provides a “springboard for deeper collaboration” using “rigorous, inclusive methods”.

The authors are careful to explain that “[t]he insights generated through the Space Partnership exercise are not intended to replace formal policy decisions. Rather, they provide a transparent reference point to inform decisions and enrich wider discussions on the UK space sector.” p11. Earlier (p10) it was noted that this dialogue helps to “**identify where further analysis or investment might be needed.**” This seems a likely source of next steps, potentially requiring different, more quantitative types of analytics.

Specific goal

At p11 it is noted that “the upcoming Space Publication may be an opportunity to realign insights with official priorities.”