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Technocratic Decisions

Human value judgements — conscious or unconscious — cannot be escaped by resort to modelling and analysis. These judgements get built into the model itself. Seldom are they re-examined after the analysis, for by then the ethical ground-rules have become tacitly established.

– Carl Barus

Engineers are accustomed to making decisions about the 'best' thing to do, given a problem in their own personal area of expertise. At times, they do this on behalf of other people who may not have such expertise. This may constitute a *technocratic decision*.

The key features of such a decision are (i) that it is made by someone with **relevant** expertise (technical knowledge); (ii) that it is, in some sense, the optimal solution in the circumstances; and (iii) that there is no (or very limited) review, because people lack either the expertise or authority. A typical technocratic decision involves deciding the best course of action (design) or an optimal allocation of resources. In either case, it would often be subject to more than one potentially conflicting requirement. For example, should a design be the most energy-efficient? or easy to fix? or lightest? It is in making the trade-offs between these requirements that such decisions get contentious and the decision is made on behalf of others who do not participate in the process, maybe by choice, maybe not.

Superficially, technocratic decisions are very appealing. When faced with a difficult decision, involving detailed and complex information, who would not want the best outcome in a given situation? And surely an expert knows best? Alas, although the idea of the expert making the best, and thus right, decision is very widespread, it has serious problems.

How the decisions are made

That the decision is the best possible one is usually supported by **numerical** evidence (i.e. mathematical rigour): tables, rankings, formulae, etc. This reassures. When we want the 'best' decision, we all like to know that an objective (measurable) decision is made, not just an arbitrary personal preference chosen.

But precisely what is 'best'? Unfortunately, this is **not** mathematically defined. For example, consider how to allocate water in a river basin. One expert (perhaps an ecologist?) calculates a certain amount must be set aside to ensure the continued health of the associated wetlands, meaning there is less water available for agricultural activities, and so derives the best way to allocate water. Another expert (perhaps an accountant?) decides that the best use of water is to maximise the wealth generated next year, and therefore assigns no water specifically to protect the environment. Both are experts; both have calculated an allocation that is best; but they disagree about what best is. Which of these options you support (perhaps neither) will reveal your personal priorities (ethical values). Or consider this: is it better to concentrate all the noise associated with the airport over the smallest possible area? or evenly spread it around everywhere? No expert can 'prove' one answer better than the other. It is Society's preference, but once a decision **is** made the expert can give the best pattern for the aircraft movements.

This example highlights one of the key difficulties with a technocratic decision. Although based on numbers, it provides only an **illusion** of objectivity and being preference neutral. Instead, it depends upon the initial priorities set by the person making the decision and these are just as subjective as any other personal choice, but not always as explicit. Often the private priorities of the decision-maker, or those of the commissioning agency that wants the decision, are used without any further discussion with relevant people. In such cases, they may be chosen to validate a decision already made, instead of really seeking what is best. For example, consider the many arguments about the 'best' energy sources we have available for electricity generation. You will have seen many, many tables, each produced by an expert and each purporting to show which source is best. Ranked by one criterion (e.g. volume of waste) it might be nuclear; by another criterion (e.g. cost/MW), it could be coal; and by yet a third (e.g. industry safety), wind. What source is actually the best? If you seek long enough, you will find evidence to support a preconceived position.

Best, by itself, is undefined, and no optimisation is possible without a criterion to optimise. The choice of criterion will necessarily bias whatever the eventual decision is.

Mathematics tells you that you can only optimise (maximise or minimise) one independent function of the same variables (i.e. requirement) at a time. If you are lucky, more than one may be optimised simultaneously, but that is either coincidence or because they are not truly independent functions. Hence, when looking for the best outcome, it is possible to rigorously find the best outcome if **only one** requirement is considered.

For example, a classic technocratic decision is the way the Reserve Bank sets interest rates. It is optimising the rate to control one single aspect of the market-place: the inflation rate. It must, by its charter, ignore all else. (This choice was made by Society, acting through elected government, not the Bank itself.) Whatever its Board thinks about the relative importance of unemployment, the exchange rate, etc. has no relevance to the decision about interest rates. Does it, then, set the 'best' interest rate? No, merely the best one to control inflation.

Rather than ignore all other requirements, a more common practice is to find a way of combining all the independent requirements into a single variable. This needs, though, non-mathematical thinking and that destroys the absolute mathematical rigour of the whole decision. It means assigning different things to equivalence classes so they are seen as having "equivalent value." How many orange trees are the same as one apple tree? or typhoid cases as traffic accidents? Trade-offs get contentious.

It is easier simply to use the cost-benefit analyses prevalent in business. Everything involved in these decisions is mapped to a common scale of dollars, either dollars spent or dollars earnt. Optimisation, i.e. the simple mathematical process, is then easy and all the decisions follow from maximising profit. Compare this problem with the classic utilitarian theory of ethics which seeks to maximise overall happiness. Before you can do the calculus, you need to sum all forms of happiness and everyone's happiness simultaneously, but how do you measure happiness, and do it sensibly over an entire planet? You know that different people value different things in different ways and are happy for different reasons. This is the core of the ethics problem associated with technocratic decisions.

Some words of caution!

Be warned about handing too much power to so-called experts. This idea of technocratic decisions, made by so-called technocrats, is associated with *technocracy* which means "those with know-how have institutional authority" (from Greek). Remember, though, that rule by a few people, no matter how well qualified, is oligarchy, not democracy. Advocating for technocracy is a form of paternalism, for it is arguing that people don't know how to make their own decisions. More colourfully the thought is phrased, "Mummy knows best."

There have been a few governments which exhibited aspects (only aspects) of a technocracy, e.g. Revolutionary France, Nazi Germany, Soviet Union. They were dictatorships, wherein the private interests of individuals could be ignored when decisions were made. Or, as it would be phrased, "sacrificed for the greater good," which takes us, once again, to utilitarian theory. As with all authoritarian systems, the technocracy was able to continue only if people have **no ability to criticise**.

For a similar reason, one expert acting alone can be dangerous for then, too, there is no criticism (i.e. peer review) available to check what is decided. You have, no doubt, seen how easily engineers over-estimate the safety (and importance) of technologies in their own expertise. One role of a profession (engineering or otherwise) is to engage in debate, to reach consensus about what actually **is** 'best.' One role of a professional is to be aware of decisions and prepared and able to criticise the bad ones. Criticism of other engineers, though, is not common practice within the profession!

Sometimes the desire for a technocratic decision is evidence of a lack of moral courage because the people concerned don't want to make the trade-offs themselves. They can then blame the technocrats! (Particularly in a party-political context, this a way of avoiding unpopular decisions.)

Sometimes, a difficult decision might be defined as technical decision deliberately to avoid discussion. Making it technical means that only technical details are legitimate items for criticism, not the important, initial choices about the non-technical features which are optimised.

More often though, people simply do not understand the complex inter-play of the different demands and may not even be aware of some of the demands. They need someone they can trust. Someone to trust is, by definition, someone who is an expert **and** shares the same ethical values. The lack of technical expertise means there is an unequal power relationship (and all the associated ethical implications) between the technocrat and those who receive/want the decisions.

When you make a technocratic decision, ensure you know

(i) the facts and data (and their reliability) upon which it will be based and

(ii) what is important to those commissioning the question and needing the decision.

You hear of people (governments?) asking for an expert's recommendation and then not accepting it because the expert's analysis didn't consider what they really wanted it to.

references

Beder, ch 10; Evan & Manion, ch 10, 13; see also Slotten