Evidence-Based Management: Practice implications for optimising decisions

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Keywords

Evidence-based management; decision quality; sources of evidence; PICOC; 6As; decision-making.

Abstract

Evidence-Based Management encompasses a series of knowledge-oriented practices aimed at improving decision quality. It achieves this by assessing and critically evaluating various evidence sources, including professional expertise, organisational data, scientific literature, and stakeholder values and intentions. By intelligently integrating these resources and adopting a more rational approach, the sustainability and management of risks in decision quality are enhanced. This article provides a high-level overview of EBMgt, utilising the principles of the PICOC framework and the 6As approach to clarify the general process of assessing the best actions based on the available evidence and its quality. Ultimately, EBMgt is not a strict formula; it demands leadership qualities in decision-making to ensure thorough exploration of options and to avoid biased selection strategies that could undermine potential courses of action.

Introduction

Consider the following scenario:
You are responsible for a public department that is experiencing significant inefficiencies, resulting in substantial management challenges due to escalating costs that jeopardise its financial viability. Furthermore, the department is failing to meet its targets, leading to considerable dissatisfaction among customers and clients, stemming from various negative experiences such as service delays and inadequate customer interactions. You have been assigned the task of addressing this issue and granted complete authority to determine the most effective solution. What course of action are you likely to pursue? A) Replace the personnel currently employed; B) Provide training to improve employee service; C) Abolish the activity entirely; D) Revise the internal Standard Operating Procedures (SOPs); E) Integrate the activity with another department.
All these options might be effective solutions; the typical answer would be, 'It depends.' This phrase, 'It depends,' serves as the central theme of this paper, which we will revisit later.

Handy (1991) illustrates a world that is undergoing continuous change, often appearing erratic and disjointed, thereby necessitating a re-evaluation of organisational structures and thought processes. In a similar vein, Taleb's (2005) concept of the Black Swan addresses the complexities of the contemporary world, where entities - be they governments, organisations, or individuals - are interconnected, rendering the anticipation of future events highly challenging, if not entirely unfeasible. Indeed, the idea of predicting, while simultaneously acknowledging the limitations in our capacity to foresee the future, was articulated years prior to the Black Swan concept by Herbert Simon (1986), who posited that our understanding of economics is frequently constrained by the necessity to reflect upon past events in order to anticipate future occurrences. This is, of course, only partly correct because patterns exist in the broader scheme of things that allow us to make intelligent guesses about the future. However, the specific details or degrees of accuracy are not always predictable, and many unknown unknowns often serve as new opportunities for learning. The point remains that today's world of work is riddled with complexities and risks that necessitate a more systematic way to make decisions, but allow us enough flexibility to go back to the drawing board to re-evaluate our courses of action. This need is also fuelled by the social, economic and geopolitical challenges the world has gone through and still goes through, making the way institutions function needs a more refined decision framework.

The Economist (2017) declared that data is the new oil. Data refers to raw facts, statistics, or information collected, stored, and analysed for reference, decision-making, or computation. Data can exist in various forms, including numbers, text, images, or signals, and can be structured (e.g. databases) or unstructured (e.g. social media posts). Data is, therefore, information. However, data, while being the basis of 'intelligence', is not evidence as it needs to be processed to allow us to make meaningful and effective inferences (Morgan, 1986).

Data to evidence: the fundamentals of decision-making

Decisions lie at the core of management practice. Decisions with long-term consequences that take shape in uncertain, often risky and complex ecosystems imply monetary, time and resources that require a delicate balance between anticipating the future and considering possible unknowns or discontinuities. Indeed, managers nowadays work in organisations where the social and economic topography is complex, which is therefore increasingly in need of undoing failed models of 'organisation' and developing new capacities to forecast and manage risk in the adaptation process. This requires a good affinity for turning data into applicable information and knowledge, but this is seldom straightforward. While these are interlinked processes, they exist in a perpetual cyclical fashion. Transforming data into information and knowledge is developmental and sequential. Humans may conveniently adopt a degree of selective attention to the most appropriate and valid data that can elicit applicable results because not all the information gathered can be justified with a favourable level of good evidence. Translating information through evidence into practice requires closing the gap between what is known and practised. Turning data into evidence and then into practice is a process of critical thought, insightful reflection and active questioning that utilises the best available evidence to plan one's course of action and weeding out the less-than-true evidence aside (Pfeffer & Sutton, 2006).

The Human Capability to manage evidence

The description above may show that the human brain may emulate what intelligence systems in AI are popularly thought to do (Kvam et al., 2024). However, the reality is that the human brain has limited information processing power, especially in contexts of uncertainty (Rousseau, 2020), and it may lack the power to override the external nuances that disrupt the 'rational' process. Social psychologist and Nobel Prize winner Daniel Kahneman proposed a dual systems theory of thinking (2003). The first (often called System 1) depends on intuitive processes that are fast, associative, effortless and emotional. Generally, we operate this way of thinking in decision-making when certainty is high, risk is low, and the consequences are likely to be meaningless. By contrast, the second (referred to as System 2) relies on a slow reasoning process governed by seeking evidence, being neutral to emotions, and requiring effort. It tends to be effective where complexity abounds, uncertainty thrives, and the consequences of our decisions can be immensely impactful. We often use System 1 too often, even when circumstances may demand a System 2 mode. It is not the scope of this essay to delve into this. However, the interested reader may consult the works of Kahneman (e.g. Kahneman, 2013) and some critical reviews on dual systems theory (e.g. Buturovic & Tasic, 2015; Evans, 2008).

Evidence-Based Management (EBMgt)

This is where Evidence-Based Management (EBMgt) principles may provide some alternative solutions to tackling complex problems or instances that require a deeper understanding of the long-term consequences of our courses of action. EBMgt may be best defined as using the best available evidence from various sources that enables a decision-maker to make a conscientious, judicious and explicit decision to allow the likelihood of the best possible outcome. In so doing, the decision-maker increases the possibilities of maximising the returns. It minimises the losses from his/her eventual actions, minimising the risk and making the decision more sustainable in terms of time, money and other resources.

In general, EBMgt relies on four specific sources of evidence. The first is professional expertise. People conversant in a specific subject matter have the knowledge, sometimes in tacit form, to judge and evaluate the type of issue they face. Professional expertise is a combination of knowledge, skills, and situational awareness that permits the 'expert' to have a more informed opinion than the rest of the population. More often than not, the expert will also rely on past experiences or familiar situations that he or she can use as a reference point and enable him/her to judge the possibilities of the way forward. The second source is organisational data. Organisational data can take all shapes and forms and may include financial, HR, Operations, IT or marketing data. This data can be assimilated into the decision-making process. They can be used to set norms, benchmarks, and predictions, sometimes using complex predictive models to explain trends, forecasts, or possible future scenarios. Indeed, technology has enabled us to use large data sets and evaluate patterns that would be invisible to the naked eye. The third source is the scientific literature. This source involves looking into the details of the subject matter and evaluating what the scientific findings tell us. It requires us to understand how and when patterns, relations, or causal mechanisms will likely happen to ensure a strong factual basis for the phenomenon we are trying to deal with or solve. The last source is the stakeholders. Stakeholders are any group, internal or external to the organisation, whose decision may directly or indirectly impact the organisation. Hence, understanding their viewpoints or influence is essential for a successful action.

As one may realise, each of these sources may not be without its limitations, and EBMgt is also about appreciating the pitfalls of each source.
For example, experts may have internal biases or suffer from discontinued links in knowledge due to various assumptions, sometimes leading to human error. Organisational data may also be subject to misrepresentation or be subjective or political, thus revealing a part of the broader picture. The scientific literature is also subject to pitfalls such as poor research design or, worse still, based on cooked data that fail to be spotted in the peer-review process, not to mention political agendas in scientific publications linked to funding or propagating a specific line of thought. Finally, stakeholder knowledge may also skew the decision, given that stakeholders may have the wrong reasons for objecting or may have a limited understanding of the broader consequences of their actions for the eventual decision. Moreover, decision-makers must be reminded that evidence is never perfect and can be misleading in many ways, as explained above. Sometimes, evidence may also be overstated.

Therefore, in EBMgt, the need to adopt skills that allow the decision maker to critically evaluate the sources of evidence and appraise (evaluate) each source is paramount. In doing so, the decision maker needs to weigh the use of the available evidence and the quality of that evidence. There is no magic wand in this, but in general, some basic techniques can be effectively used to increase the chances of a favourable outcome. We illustrate this using the scenario above.

EBMgt in practice

Good practices underlying EBMgt usually consider two essential points: (1) understanding the reason for the decision and (2) making the best decision after critically appraising the evidence. These two processes go hand-in-hand and require time and effort to ensure that System 2 operates rather than risking knee-jerk reactions to contaminate the process.

In the first instance, we utilise an arrangement system called PICOC. Each letter in the acronym refers to a specific element of the problem situation; hence, P refers to Population (who is the target of the intervention or may be affected by the intervention?); I refers to Intervention (what management technique will we adopt to effect the change?); C refers to Comparison (how does this intervention compare to other interventions? Is it more effective?); O refers to Outcome (what is it that you are trying to change or improve?); and C refers to Context (what is the type of organisation, or are there specific contextual realities you must be aware of?). Let us transpose the case scenario example into a PICOC (see Table 1):

Table 1: Using PICOC to structure the issue at hand

Population	Public officers who are client-facing
Intervention	Transformation and Re-design
Comparison	Other similar departments that are effective
Outcome	Improved customer experience; reduced delays
Context	A public organisation

Notice that changing one parameter may shift the focus of the issue to be addressed. For example, if the context were a school or a private organisation, the focal shift of acceptable actions would differ. The public service, for instance, may be subject to specific internal regulations that may not apply to a school or a private institution. Hence, the decision maker has clarity on what to focus on and prevents him/herself from borrowing practices that may otherwise backfire in this specific instance. PICOCs are often refined after several discussions to ensure they are clear and meet the project's purpose.

The next stage involves processing the PICOC using the 6As approach. The 6As represent a systematic method that utilises System 2 and avoids leaving any stone unturned. Table 2 provides what each 'A' stands for, including how we would translate our issue at hand against the 6 As:

Table 2: Description of the 6 As and typical applications, in brackets, for the example in this article

Ask	What is the question? (What is the root cause of deficiency in the Department?)
Acquire	What evidence is available? (Past survey results, Stakeholder reports, business data, meetings with heads, etc.)
Appraise	How trustworthy is the evidence? (Past survey results (6/10), Stakeholder reports (8/10), business data (9/10), meetings with heads (5/10))
Aggregate	What bigger picture do we have when we place all the evidence together? (After pulling ALL the evidence and weighing each source's trustworthiness against specific evaluation criteria, you deduce that the issue is related to lack of communication and low response time rather than structural problems).
Apply	How will we implement the recommendations that derive from the evidence? (D -> A -> B)
Assess	How do we ensure the intervention works? (In six months, we re-compare several specific metrics)

One appreciates that the 6A process above would require a lengthy discussion, but some highlights are noteworthy. First, the question requires one to focus on the underlying issue. Questions like 'How can the Department be improved?' imply a baseline and may require a different set of 'evidence', such as more customer feedback. Therefore, the question is critical and should not be underestimated. Second, obtaining the evidence that points towards the question is essential, and this is expected to happen without prior conditions or selective biases; indeed, any evidence that highlights the purpose of the question is adequate and should be consulted. Third, a format for appraising the evidence must ensure objectivity. Several techniques can be used, but in this example, we provided a simple weighting system from 1 (low) to 10 (high) to ensure a diligent process that permits us to weed out the low-quality evidence from the higher-quality evidence. Fifth, only after this process is completed can we bring all the evidence together (aggregate) and decide as objectively as possible which course of action is best in the circumstances and given the resources. For instance, in this example, the best choice is (i) changing the internal SOPs, followed by (ii) replacing some people and eventually (iii) training the employees to provide a better service, in that order, given the evidence. It may be that merely training alone would not have given the desired results, culminating in wasted resources. Alternatively, training may have been a better solution if the evidence we critically appraised indicated this is the best way forward.

Concluding note

This essay provided a very high level of appreciation of EBMgt and is meant to inform, rathern than, instruct about EBMgt. Using EBMgt principles should not be deemed a formula. Still, it should be implemented as a sign of 'good practice' that permits public officers to engage with complex decision-making issues using an approach that uplifts the quality of decisions to ensure a consistent and realistic outcome. One must appreciate that the benefits of EBMgt are far-reaching, as they help to reduce the element of risk and reflect good governance and accountability. EBMgt also reflects sustainability because courses of action indicate a high degree of logical consistency, thus diminishing subjective variability in decision-making.

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