



making sustainable choices

A Guide for Managers



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Managers face many decisions, but they often make unsustainable choices.

How can we
encourage individuals
in organizations
to make more
sustainable choices?



making sustainable choices

A guide for managers

This report is based on a systematic review conducted by Joseph Arvai, Victoria Campbell-Arvai and Piers Steel (all of the University of Calgary). The research team reviewed more than 60 years of research on decision-making. They identified common biases and errors that inhibit our ability to arrive at more sustainable choices, both as organizations and individuals. You can make better decisions by being aware of these common decision biases and errors, and knowing how to overcome them – or making them work in your favour.

Understanding why we do or do not engage in sustainable behaviour can be addressed from a variety of research perspectives; for example, through research on values, beliefs and norms. This report was specifically based on research that sought to understand and support actual decision-making behaviour (as opposed to attitudes or intentions to perform a particular behaviour).

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reach sustainable outcomes through better decisions

A manager confronts a number of decisions daily, ranging from whether to turn off lights to what benefits to confer on employees. How does she choose among the array of options to get to the most sustainable outcome? By understanding the decision-making process, staff and management can be encouraged to act more responsibly. This report provides insights into how decisions are made and how sustainable choices can be reached.

This research is most relevant for:

- Sustainability managers looking to encourage better choices by their employees or customers (e.g. reducing energy usage, recycling waste).
- Executives seeking ways to create more transparent, inclusive processes for making major decisions (e.g. where to site a new facility, reclaiming land).
- Policy-makers in the public or private sector looking to enable sustainable choices.

This guide can help you:

1. Understand how sustainability decisions are – and aren't – like other decisions.
2. Identify the decisions that are most susceptible to biases.
3. Translate decisions into actions.
4. Create more transparent processes for making complex decisions.

Are sustainability decisions like other decisions?

Yes and no. To answer the question, we need to know how we make decisions.

How are decisions made? Economic models assume people have access to all information, can process it all, and are not victim to errors and biases. This simply isn't reality.

People use biases to "help" make decisions quickly and easily. While these biases simplify complexity and gain efficiency, they do not always result in the

best long-term solution to a particular question or problem. For the most part, these shortcuts serve us well in our day-to-day lives. For example, choosing to remain with a vendor or particular product line because it has performed well in the past can yield an outcome that is "good enough" by many objective standards. But in other cases, remaining with the status quo can prevent us from acting in a manner that better accounts for sustainability considerations (or at the very least in a manner that best serves our self interest).

Figure 1 **GETTING TO A SUSTAINABLE OUTCOME**

When faced with a **decision point**, individuals must consider a range of more and less sustainable options. But built-in **biases** can push individuals towards choices that are less sustainable. **Interventions** can help individuals overcome or leverage biases to get to **sustainable outcomes**.





What sustainability-related decisions do we make?

A sustainability officer is tasked with finding ways to encourage employees to reduce office waste.

A health and safety officer in a manufacturing company is looking to address a broad array of health, environmental and economic considerations when remediating and reclaiming the grounds of an old facility.

A director in a non-governmental organization is seeking to increase the adoption of energy-efficiency measures among homeowners.

A team of managers at a large university is considering several options to power their campus – but how to choose among them to ensure that environmental, economic, educational and social objectives are met?

So how are sustainability decisions different from other decisions? Sustainability decisions can be subject to specific biases more often than other decisions, such as preference for the status quo or the tendency to choose “wants” over “shoulds”. By understanding which biases crop up again and again, you can manage or leverage them.

Four categories of biases and errors that are particularly salient to sustainability decisions are described in detail in Table 1. These may cause decision-makers to consistently and predictably land on less-sustainable outcomes.



Table 1 **BIASES AND ERRORS THAT COME INTO PLAY WHEN MAKING SUSTAINABILITY DECISIONS**

Decision Biases & Errors	What happens?	For example...
loss avoidance	We judge gains and losses relative to our present state. We don't like to give up things we already have	Sustainability decisions may require us to give up something (even if we get something else in exchange)
short-cuts	We focus on information that's familiar, recent or easy to interpret – even if it's not very relevant	Sustainability decisions often use hard-to-evaluate criteria, e.g. recreational benefits or human health effects, which are trumped by simple financial metrics
intuition	We over-rely on gut feeling and intuition when distracted or faced with new situations	Sustainability decisions are often novel, so individuals may struggle to process all relevant factors and rely instead on intuition
“wants” vs “shoulds”	We tend to let “wants” trump “shoulds” – particularly when we're tired or distracted	Sustainability decisions may yield longer-term paybacks, falling into the category of “shoulds” rather than “wants”



So what can we do about these biases and errors?



It depends on the type of decision being made

There are two basic types of decisions:
Routine and complex.

Routine decisions. Individuals face numerous routine decisions. These decisions can happen at home or work. They tend to be frequent, quick and do not involve a lot of conscious thought. *For example: recycling a coffee cup or turning on a light.* We can improve our routine decisions (and those of our employees, friends or families) by *leveraging* our built-in biases.

Complex decisions. Individuals or groups (companies, committees) can face complex decisions. These decisions tend to be infrequent, require the synthesis of technical and other information, and involve a great deal riding on arriving at the “right” decision. *For example: deciding where to site a new facility or investing in climate adaptation initiatives.* Decision support techniques employed to support complex decisions break these decisions down into manageable steps and aim to overcome built-in biases and errors.

Recognize that different types of decision supports outlined in Table 2 are useful for different types of decisions. Active supports are tools that help overcome our natural limitations to arrive at the “right” decision for us given the criteria we have identified (as in Multi-Criteria Decision Analysis) or to thoughtfully consider a range of competing objectives and stakeholder perspectives (as in Structured Decision-Making). In using active supports we are working against our nature. Passive supports aim to take advantage of our natural tendencies to steer us towards particular – presumably more environmentally or socially desirable – outcomes (as in commitment, feedback, defaults and goal-setting).

Research shows past approaches to tackling sustainability issues haven’t always been successful. The uptake of office efficiency and waste reduction measures is still low and prior efforts at stakeholder engagement have sometimes resulted in dissatisfaction with the process and/or outcomes of important decisions. By using interventions, we can get to better outcomes: for instance, the use of feedback has resulted in four to 12 percent reductions in household energy use (see full [report](#) for more details).



How can we get more sustainable choices across contexts?



Some commonly used and effective interventions are discussed in detail below. Table 2 identifies the technique, what it means, how it has been used and why it works.



Table 2 **OVERVIEW OF INTERVENTIONS FOR ROUTINE AND COMPLEX DECISIONS**

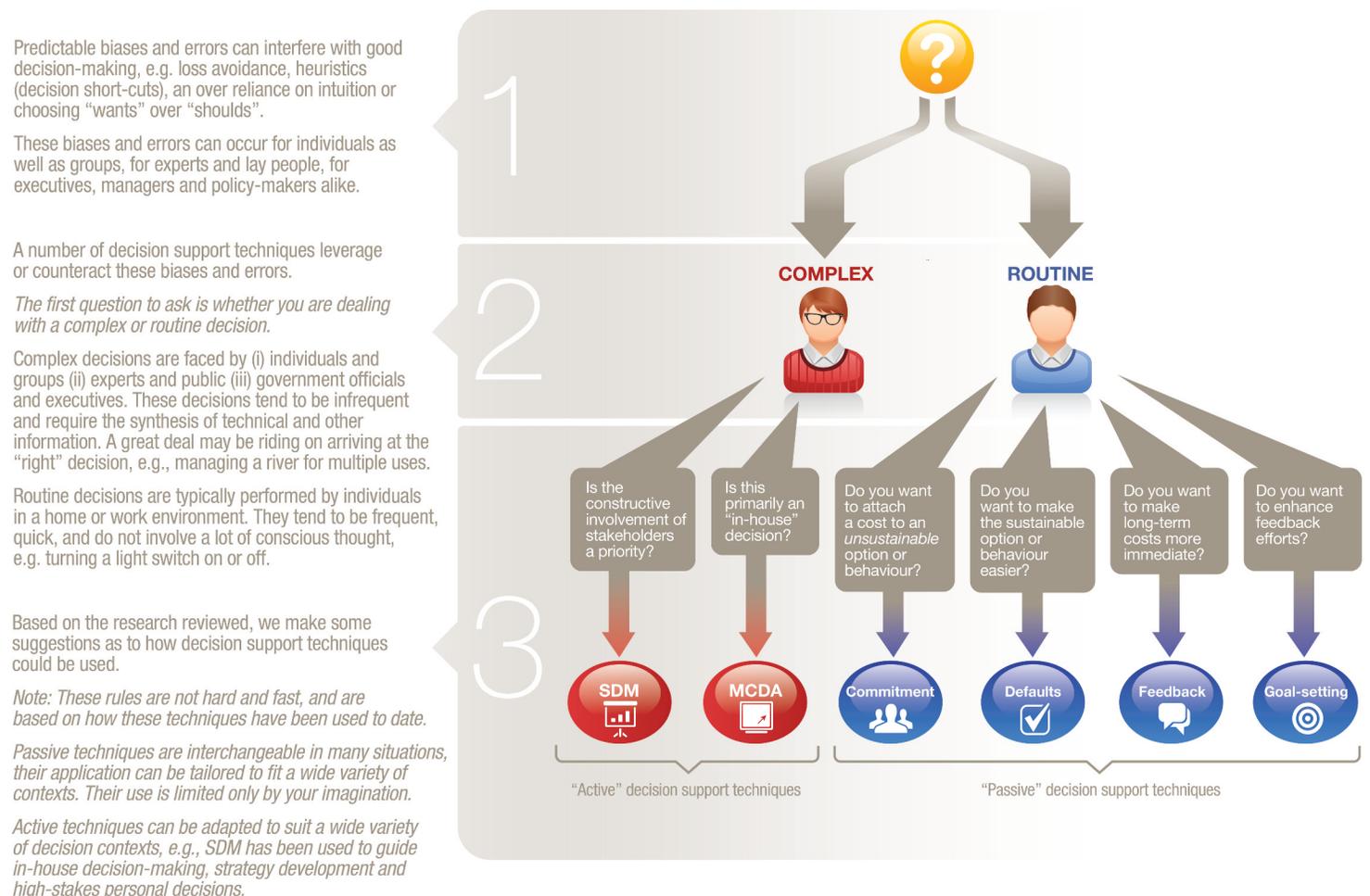
	Intervention	What it is	Example	Why it works
For routine decisions	commitment 	Publicly commit (or lock yourself in) to performing a sustainable behaviour in the future	“Idle-free” campaigns across Canada: private, commercial, and municipal drivers publicly pledge to turn off engines	Public commitment enhances positive feedback for sustainable behaviour – and provides for negative feedback if you don’t deliver
	defaults 	Make a sustainable behaviour the default (more obvious or easy) choice	Energy efficiency initiatives in which participants must opt out are more effective	Defaults and opt-out programs build on the power of the status quo and our aversion to losses
	feedback 	Provide verbal, written or digital feedback (preferably in real time) on behaviour outcomes	In-home digital displays provide real-time feedback on electricity use; can be appliance specific	Makes long-term costs tangible and relevant “now”; enhances “good feelings” of meeting sustainability goals
	goal-setting 	Set an expected level of performance or compliance for a sustainable behaviour	Office-based efficiency and waste reduction efforts begin with a goal or target for these efforts	Enhances the meaning of feedback by providing a benchmark against which to judge progress
For complex decisions	structured decision-making (sdm) 	Diagnose the problem with stakeholder input; break decision into manageable steps; decision is based on alternative which performs best against decision criteria; broad input is solicited at all stages and process is typically guided by a facilitator	A utility company utilizes SDM to find constructive and sustainable solutions to competing river use demands	Decisions are seen as an opportunity to clearly identify objectives, include diverse perspectives and deal with tough trade-offs; avoids solutions that are attractive only because they are obvious or easy, or because it’s the “way it has always been done”
	multi-criteria decision analysis (mcda) 	Set decision criteria, weight criteria and enter criteria into a computer program which calculates an overall score for each alternative	A municipal authority uses input from MCDA to decide among various solid waste management options – including the siting of new facilities	Reduces complex, diverse info about options to a single score; decision options are ranked according to those scores and the decision-maker can choose the option with the highest score

For more information on the biases above, read the [full report](#).

Figure 2 shows how a manager might decide on a strategy for getting to a more sustainable decision in a particular situation:

1. Is the decision complex or routine?
2. What are the characteristics of the decision and context that need to be addressed?
3. Which interventions are most likely to assist in getting to a more sustainable outcome?

Figure 2 OVERVIEW OF DECISION SUPPORT TECHNIQUES FOR ROUTINE AND COMPLEX DECISIONS



MCDA or SDM: Which is right for your organization?

Sustainability managers may consider implementing some version of either Structured Decision-Making or Multi-Criteria Decision Analysis to consistently improve the way their organizations make complex decisions.

Both SDM and MCDA can be applied across a range of situations – and in fact SDM and MCDA share many of the same theoretical principles. It's worth noting that these methods have gained some popularity with organizations that have high needs for transparency and stakeholder involvement (for instance, government agencies and quasi-private corporations). The general characteristics of each are identified below:

In choosing whether to consider implementing active decision supports in your organization, recognize that either approach can represent a significant investment of time and other resources. These tools are best used not as solutions to a single problem, but as consistently applied organizational approaches to addressing a range of decisions.

	SDM 	MCDA 
Allows for the complexity inherent in sustainability issues	●	●
Weights decision criteria and ranks possible outcomes	●	●
Builds in mechanisms to help make tough trade-offs	●	●
Brings rigour to the decision-making process	●	●
Uses mathematical models and computer algorithms to rank solutions from best to worst		●
Focuses on building legitimacy and trust through the process	●	
Views decision-making as an opportunity to meaningfully incorporate stakeholder values throughout the process	●	
Brings transparency to the decision-making process	●	●

In practice: Structured Decision-Making at BC Hydro

BC Hydro is one of Canada’s largest electric utilities, serving 95 percent of British Columbia residents. The provincial crown corporation has long considered environmental and social factors alongside economic factors as part of its approach to doing business. But it was clear from the outset that trade-offs would have to be made if decisions were to incorporate all three factors.

“BC Hydro had set an objective of being a sustainable energy company,” says Brenda Goehring, Manager, Corporate Environment & Sustainability. “But the challenge we faced was how we could operationalize that thinking across the organization.” Though BC Hydro had been incorporating the three priorities into its processes since the mid-1990s, it realized a more formal

approach was necessary and established cross-organizational Structured Decision-Making (SDM) in 2008. SDM helps companies manage competing objectives, complexity and stakeholders, and involves a five-step process (following the acronym ProACT): defining the Problem, specifying Objectives and measures, creating Alternatives, identifying Consequences and clarifying Trade-offs.

This process is summarized for BC Hydro employees in Structured Decision-Making in a Page. This resource outlines the ProACT framework and prompts decision-makers to consider such questions as: “Were the appropriate people involved in the process?” and “Do the alternatives include creative solutions, challenging perceived constraints and combining elements in thoughtful ways?”

SAMPLE CONSEQUENCE TABLE FOR SDM

Objectives	What happens?	Option A	Option B	Option C
Maximize financial return	Net present value (\$)	\$1,000,000	\$1,250,000	\$850,000
Minimize area of disturbed wetland	Area impacted wetland (ha)	10 ha (+/- 2 ha)	6 ha (+/- 1 ha)	4 ha (+/- 1 ha)
Minimize risk of contaminated soil	Max. potential soil contamination (index)	Medium	Medium	High
Maximize reliability to customers	Length of line near tall trees (km)	14 km	16 km	22 km

NOTE: In this example, we are comparing Options B and C to Option A. The colours highlight the trade-offs.

SDM has numerous benefits. “It’s scalable and you can apply it to something straightforward or multi-faceted,” says Goehring. “SDM creates rigour and discipline whether the question involves assessing alternatives for bottled water use by line crews or making six-figure procurement decisions.” Has SDM led to better outcomes? Yes, says Goehring, who explains the process allows people to take a different perspective on options under consideration. It forces decision-makers to look beyond the usual engineering or technical solution to see how other corporate objectives can be met.

“The process helps us take a long-term view, which leads to new and more thoughtful alternatives,” Goehring notes. “It also highlights gaps in knowledge, which means we can go out and get more information.” It has also raised awareness that rigour and transparency are important in the company, and expected for long-term decisions. Having the process in place has enabled better discussions and support for decisions, as well as improved organizational consistency.

Companies looking to develop an SDM framework should understand there’s an investment upfront. But according to Goehring, “eventually the framework becomes just another step in the business process. For BC Hydro, it was about getting a framework that could work for experts and non-experts alike.” One key success factor for BC Hydro was getting employees involved from the outset and letting their interest drive development and adoption of the new framework.

Example

In 2008, BC Hydro was reviewing its hydro pole procurement. The company took into account a range of factors when considering the type of wood used, including reliability of supply, quality and safety. It ultimately decided to source cedar poles rather than pine ones. Though pine was cheaper, it was more prone to rot and the supply was at risk due to BC mountain pine beetle infestation. And, pine poles require more chemical treatment, meaning more complex end-of-life disposal and less wood to be recycled. Considering all of these factors – not just the upfront cost – BC Hydro estimates it will save \$110 million over 60 years as a result of the decision to source cedar poles.

For a more detailed discussion of BC Hydro’s SDM, please visit Industry Canada’s case study and outline of the PROACT process. http://www.ic.gc.ca/eic/site/csr-rse.nsf/eng/h_rs00564.html

about the research

This research was inspired by the NBS Leadership Council, which gathers annually to identify the top sustainability challenges for business. This report is an extension of a larger systematic review authored by Dr. Joseph Arvai, Dr. Victoria Campbell-Arvai and Dr. Piers Steel which reviewed 207 relevant sources over more than 60 years. Using this set of sources, the researchers conducted extensive, detailed analysis and synthesis of the materials to provide insight as to why individuals find it difficult to balance social, economic and environmental considerations when making decisions. The team also outlined the two main types of decisions, the tools that can help improve decision-making and the characteristics that define when each approach is most appropriate. The full systematic review is available [here](#).

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about NBS

A Canadian non-profit, the Network for Business Sustainability produces authoritative resources on important sustainability issues with the goal of changing management practice. We unite thousands of researchers and professionals worldwide who believe passionately in research-based practice and practice-based research.

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NBS Leadership Council

NBS's Leadership Council is a group of Canadian sustainability leaders from diverse sectors. At an annual meeting, these leaders identify their top priorities in business sustainability – the issues on which their organizations need authoritative answers and reliable insights. Their sustainability priorities prompt NBS research projects.



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