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Decision-Making

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decision-making

Definition

Decision-making is the process whereby an individual, group or organization reaches conclusions about what future actions to pursue given a set of objectives and limits on available resources. This process will be often iterative, involving issue-framing, intelligence-gathering, coming to conclusions and learning from experience.

Abstract

This entry aims to connect behavioural research on decision-making over a number of decades to the field of strategic management. This intersection has not been as fully developed as it could be and hence presents rich opportunities for improving strategic decision-making in and by organizations. We shall cover both individual and organizational findings using our four-phased decision framework (Russo and Schoemaker, 2002), with special links to the domain of strategic decisions. These include corporate strategic choices as well as adopting a strategic approach to making tactical and even operational decisions in organizations.

Multiple views exist about strategic decision-making in complex firms, from rational, top-down perspectives to incremental and power-based ones (see Schoemaker, 1993). The rational unitary actor model posits that organizations carefully scan their environment and objectively match external opportunities with internal strengths. By contrast, the organizational view emphasizes that even though these may be the intentions of individual actors, the design of the organization (in terms of structure and process) greatly influences what is perceived, encoded and acted upon. The political view especially questions the intended collective rationality of organizational actors and frames them as coalitional in nature. Stronger groups will often enhance their power and interests at the expense of the minority or even the firm's overall well-being (Allison, 1971). Lastly, some scholars view the organization as entangled in its own inner complexity, with limited coping routines and a high degree of context-sensitivity. The garbage can model (Cohen, March and Olsen, 1972) posits that what happens and why in organizations depends greatly on the vagaries of the moment, that is to say the actors involved, the timing of the decision, hidden agendas, information flows and other details in the mosaic of organizational life.

As firms become large and highly structured, they must manage increasingly complex decision processes,

which may strain the adequacy of the heuristics employed to achieve approximate rationality. Complexity often creates unwelcome biases in the decision-making process. A well-known example is the sunk cost fallacy and the related phenomenon of escalating commitment to existing courses of action (Schultze, Pfeiffer and Schulz-Hardt, 2012). Psychologically, losses – especially those that are quantified and recorded such as write-offs of major investments – loom larger than comparable gains or opportunity costs (Kahneman and Tversky, 1979). Also, as firms grow, strategic decisions are more likely to encounter internal political and organizational constraints that exclude creative perspectives while highlighting more routine ones. For example, the relevant competitors may be defined as just domestic ones (as the car makers in Detroit once did). Or the time frame may be limited to just five years (when examining future technological trends). Furthermore, which committee will evaluate various investments, in what sequence and at what time may matter greatly (Bower, 1971).

Cognitive biases

The remainder of this entry will focus on cognitive sources of poor decision-making, while fully recognizing that many emotional factors influence the decision process as well (Kets de Vries and Miller, 1987; Weber and Johnson, 2009). We view the decision process as consisting of four key phases: (1) framing, (2) intelligence-gathering, (3) choice and (4) learning from feedback. In addition, there is the important meta-decision stage. It overarches the four phases just mentioned, posing such questions as: (i) are we solving the right problem, (ii) who should be involved in the decision and (iii) which of the above four phase(s) deserves the most attention? Figure 1 charts this model of decision-making based on Russo and Schoemaker (2002). The accounting and finance functions are traditionally strong in addressing the choice or ranking phase, while leaving idea generation and framing more to other disciplines and functions, such as marketing and strategy.

Framing

It is useful to distinguish between decision frames and thinking frames. Decision frames define the acts, contingencies and outcomes as perceived by the decision maker (Tversky and Kahneman, 1986). Thinking frames concern the deeper cognitive

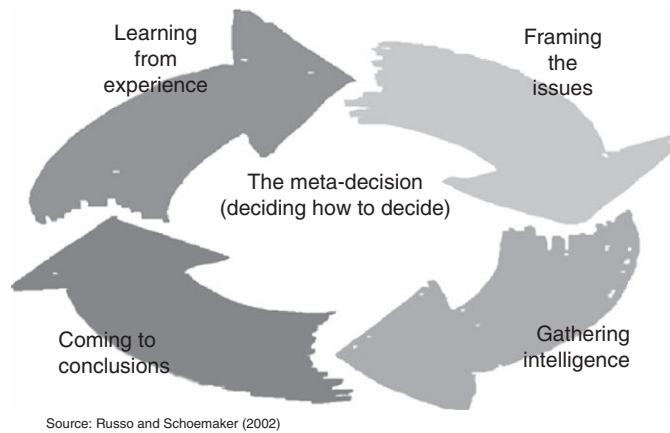


Figure 1 Phases of the decision process

structures, such as knowledge bases, scripts, schemata, cognitive maps and inference mechanisms that shape the decision frame. Key aspects of the decision frame are its boundaries (for example, region, time and market scope), reference points (for instance, required rates of returns, performance benchmarks, relevant competitors) and metrics (such as return on investment, market share and measures of product quality).

Many firms use their own past performance, or that of close competitors, as the relevant reference point for judging their success. Such myopic framing plagued much UK industry in the 1970s as well as the automobile manufacturers in Detroit. A more subtle framing issue in new technology decisions concerns the ‘don’t invest’ option, which often assumes a continuation of current trends as its reference point (Kaplan, 1986). This static view, however, ignores the actions of competitors which will likely erode the status quo. Game theory, as well as shifting the metaphor (e.g., towards biological evolution), can help challenge such myopic frames. The failure to adopt a portfolio perspective is another notable framing bias of the behavioural decision literature (see Thaler, 1980); each decision is addressed in isolation of others.

Intelligence-gathering

Primary biases in this phase are (1) the tendency towards OVERCONFIDENCE, (2) reliance on flawed heuristics in estimation and (3) a preference for confirming over disconfirming evidence. Overconfidence or hubris reflects poor secondary

knowledge, that is not knowing what we don’t know (Kahneman, Slovic and Tversky, 1982; Klayman et al., 1999). This can be partly cured through repeated feedback (e.g., in weather forecasting and bridge) or attempts to challenge key premises via reason generation, fault trees or scenario construction (Russo and Schoemaker, 1992). The overconfidence bias is especially likely to plague decisions for which little data exist and in which judgement must necessarily play a major role. The key is to know when to distrust one’s intuitions and how to bring key assumptions to the surface (Mason and Mitroff, 1981), especially in small groups (Janis, 1982).

Reliance on heuristics (that is, short-cuts that simplify complex judgements) is unavoidable in many cases. For instance, future market share or interest rates may be predicted from current values. However, often such anchors drag the judgement, resulting in an underestimation of change (Tversky and Kahneman, 1974) and hence conservatism. In stable times, managerial heuristics (in such areas as pricing, hiring, forecasting) often strike an efficient balance between accuracy and information-processing cost. During periods of discontinuity, many established rules of thumb become outdated and dangerous when accepted as truth. Thus, firms may be burdened with inappropriate mental software when exploring the promises and pitfalls of new investments (Schoemaker, 1990).

Out-of-date heuristics may persist because of the third bias mentioned: the failure to search for disconfirming evidence. Managers seldom approach their inference- and hypothesis-testing tasks with a

mindset aimed at disproving received wisdom. Aversion to contrary evidence and institutionalized filtering reinforce old beliefs and habits. Often, a new generation of managers or successful start-up competitors are needed before adaptation to changing circumstances can occur.

Choice

Of the four phases of decision-making, choice may be on the firmest analytic ground. Net present value (NPV) analysis imposes considerable discipline on calculations that would otherwise overwhelm human intuition. Nonetheless, this tool requires unbiased inputs to yield its supposed benefits. Much of finance theory addresses how to set the discount rate to reflect a project's cost of capital and systematic risk, but offers little guidance on how to estimate cash flows or the value of downstream options. In addition, the problem may not be just the valuation of alternatives explicitly considered, but restricting the firm unduly to a narrow set of innovation options. Numerous informal choices are made along the convoluted path of project idea to formal evaluation, both individually and in small groups.

One factor especially complicates strategic choices, namely people's natural aversion to ambiguity. In rational models of choice, ambiguity should not matter. Uncertainty (in the sense of second-order probability distributions) and even ambiguity (in the sense of ill-defined probability distributions) is ignored by *integrating* over a presumed subjective probability distribution – defined on the target probability. Behaviourally, however, people tend to prefer a known probability over an unknown one of equal mathematical expectation (Ellsberg, 1961; Einhorn and Hogarth, 1986). Thus, projects entailing high ambiguity – stemming from either technological or market uncertainties – are likely to be systematically undervalued in people's informal screening of projects. In addition, the customary insistence of large firms on formal, numerical justification of investments, bodes ill for high-ambiguity projects whose risk parameters – by definition – are hard to estimate objectively.

Learning

A strong emphasis on the *performing* organization – as is typical in most companies – often occurs at the expense of the *learning* organization (Senge, 1990). Those characteristics that enabled the firm to find a profitable niche in the first place – such as creativity,

flexibility, informality and a tolerance of failure – must largely be suppressed to deliver reliable results and reduce performance variance. If so, the firm's short-term performance may be optimized at the expense of its long-term survival prospects, due to lack of requisite variety (Ashby, 1956). Balancing exploitation and exploration (March, 1988) is a major challenge in most companies.

Various obstacles plague learning from experience. They range from rationalization and ego defences to incomplete or confounded feedback (see Russo and Schoemaker, 2002). Since organizations may make only a small number of truly strategic decisions within any given management generation, they encounter the problem of infrequent feedback and, probably, a lack of independence in the outcomes. This suggests that outcome feedback will be noisy and limited, and that the emphasis should shift to process feedback. This requires examining *how* the decision was arrived at in terms of premises, data sets, choice procedures, incentive alignments, implementation and so on. Gulliver (1987) provides a practical example of the kind of 'decision auditing' from which firms can benefit.

Although post-mortems are a great way to learn from mistakes, the ultimate aim is to convert lessons learned the hard way into pre-mortems (Kahneman and Klein, 2009). *Ex ante* learning requires a culture that permits mistakes and diversity. For example, learning about new technologies may require a new organizational unit separate from the mainstream business or technology. IBM adopted this path, for instance, when developing its PC, as did General Motors (GM) for its Saturn project. Such separation is one way to resolve the inherent conflict between the performance and learning cultures in organizations (Senge, 1990). To optimize performance over the next few periods, the firm should exploit what it knows best. To maximize its long-term survival, the firm must extend its capabilities through exploration. Long-term success may require short-term sacrifices. Managing this trade-off well requires an ambidextrous organization (O'Reilly and Tushman, 2004), including a strong willingness to challenge the very mental models that made the firm successful.

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See also

BEHAVIOURAL THEORY OF THE FIRM; INFORMATION AND KNOWLEDGE; LEARNING AND ADAPTATION; ORGANIZATIONAL LEARNING; OVERCONFIDENCE; RESOURCE ALLOCATION THEORY

References

- Allison, G. T. 1971. *Essence of Decisions: Explaining the Cuban Missile Crisis*. Boston, MA: Little, Brown.
- Ashby, W. R. 1956. *Introduction to Cybernetics*. New York: Wiley.
- Bower, J. L. 1971. *Managing the Resource Allocation Process*. Cambridge, MA: Harvard University Press.
- Cohen, M. D., March, J. G. and Olsen, J. P. 1972. A garbage can model of organizational choice. *Administrative Science Quarterly* 17, 1–25.
- Einhorn, H. and Hogarth, R. 1986. Decision making under ambiguity. *Journal of Business* 59, S225–S250.
- Ellsberg, D. 1961. Risk, ambiguity and the savage axioms. *Quarterly Journal of Economics* 75, 643–669.
- Gulliver, F. 1987. Post-project appraisals pay. *Harvard Business Review* 65, 128–132.
- Janis, I. 1982. *Groupthink*. Boston, MA: Houghton Mifflin.
- Kahneman, D. and Klein, G. 2009. Conditions for intuitive expertise: a failure to disagree. *American Psychologist* 64, 515–526.
- Kahneman, D. and Tversky, A. 1979. Prospect theory. *Econometrica* 47, 263–292.
- Kahneman, D., Slovic, P. and Tversky, A. eds. 1982. *Judgment under Uncertainty: Heuristics and Biases*. New York: Cambridge University Press.
- Kaplan, R. S. 1986. Must CIM be justified by faith alone? *Harvard Business Review* 64, 87–95.
- Kets de Vries, M. F. R. and Miller, D. 1987. *Unstable at the Top*. New York: NAL Books.
- Klayman, J., Soll, J. B., Gonzalez-Vallejo, C. and Barlas, S. 1999. Overconfidence: it depends on how, what, and whom you ask. *Organizational Behavior and Human Decision Processes* 79, 216–247.
- March, J. G. 1988. *Decisions and Organizations*. Oxford: Basil Blackwell.
- Mason, R. O. and Mitroff, I. I. 1981. *Challenging Strategic Planning Assumptions*. Chichester: Wiley-Interscience.
- O'Reilly, C. A. and Tushman, M. 2004. The ambidextrous organization. *Harvard Business Review* 82, 74–83.
- Russo, J. E. and Schoemaker, P. J. H. 1992. Managing overconfidence. *Sloan Management Review* 33, 7–17.
- Russo, J. E. and Schoemaker, P. J. H. 2002. *Winning Decisions: Getting it Right the First Time*. New York: Doubleday.
- Schoemaker, P. J. H. 1990. Strategy, complexity and economic rent. *Management Science* 36, 1178–1192.
- Schoemaker, P. J. H. 1993. Strategic decisions in organizations. *Journal of Management Studies* 30, 107–129.
- Schultze, T., Pfeiffer, F. and Schulz-Hardt, S. 2012. Biased information processing in the escalation paradigm. *Journal of Applied Psychology* 97, 16–32.
- Senge, P. M. 1990. The leader's new work: building learning organizations. *Sloan Management Review* 19, 7–23.
- Thaler, R. H. 1980. Towards a positive theory of consumer choice. *Journal of Economic Behavior & Organization* 1, 39–60.
- Tversky, A. and Kahneman, D. 1974. Judgment under uncertainty: heuristics and biases. *Science* 185, 1124–1131.
- Tversky, A. and Kahneman, D. 1986. Rational choice and the framing of decisions. *Journal of Business* 59, S251–S284.
- Weber, E. U. and Johnson, E. J. 2009. Mindful judgment and decision making. *Annual Review of Psychology* 60, 53–85.