

Introduction 1

Complex decisions

Imagine that you are facing the following problem. For several years you have been employed as a manager by a major industrial company, but recently you have become dissatisfied with the job. You are still interested in the nature of the work and most of your colleagues have a high regard for you, but company politics are getting you down, and there appears to be little prospect of promotion within the foreseeable future. Moreover, the amount of work you are being asked to carry out seems to be increasing relentlessly and you often find that you have to work late in the evenings and at weekends.

One day you mention this to an old friend at a dinner party. 'There's an obvious solution,' he says. 'Why don't you set up on your own as a consultant? There must be hundreds of companies that could use your experience and skills, and they would pay well. I'm certain that you'd experience a significant increase in your income and there would be other advantages as well. You'd be your own boss, you could choose to work or take vacations at a time that suited you rather than the company and you'd gain an enormous amount of satisfaction from solving a variety of challenging problems.'

Initially, you reject the friend's advice as being out of the question, but as the days go by the idea seems to become more attractive. Over the years you have made a large number of contacts through your existing job and you feel reasonably confident that you could use these to build a client base. Moreover, in addition to your specialist knowledge and analytical ability you have a good feel for the way organizations tick, you are a good communicator and colleagues have often complimented you on your selling skills. Surely you would succeed.

However, when you mention all this to your spouse he or she expresses concern and points out the virtues of your current job. It pays well – enough for you to live in a large house in a pleasant neighborhood and to send the children to a good private school – and there are lots of other benefits such as health insurance and a company car. Above all, the job is secure. Setting up your own consultancy would be risky. Your contacts might indicate now that they could offer you plenty of work, but when it

came to paying you good money would they really be interested? Even if you were to succeed eventually, it might take a while to build up a reputation, so would you be able to maintain your current lifestyle or would short-term sacrifices have to be made for long-term gains? Indeed, have you thought the idea through? Would you work from home or rent an office? After all, an office might give a more professional image to your business and increase your chances of success, but what would it cost? Would you employ secretarial staff or attempt to carry out this sort of work yourself? You are no typist and clerical work would leave less time for marketing your services and carrying out the consultancy itself. Of course, if you failed as a consultant, you might still get another job, but it is unlikely that it would be as well paid as your current post and the loss of self-esteem would be hard to take.

You are further discouraged by a colleague when you mention the idea during a coffee break. 'To be honest,' he says, 'I would think that you have less than a fifty-fifty chance of being successful. In our department I know of two people who have done what you're suggesting and given up after a year. If you're fed up here why don't you simply apply for a job elsewhere? In a new job you might even find time to do a bit of consultancy on the side, if that's what you want. Who knows? If you built up a big enough list of clients you might, in a few years' time, be in a position to become a full-time consultant, but I would certainly counsel you against doing it now.'

By now you are finding it difficult to think clearly about the decision; there seem to be so many different aspects to consider. You feel tempted to make a choice purely on emotional grounds – why not simply 'jump in' and take the risk? But you realize that this would be unfair to your family. What you need is a method which will enable you to address the complexities of the problem so that you can approach the decision in a considered and dispassionate manner.

This is a personal decision problem, but it highlights many of the interrelated features of decision problems in general. Ideally, you would like to maximize your income, maximize your job security, maximize your job satisfaction, maximize your freedom and so on, so that the problem involves *multiple objectives*. Clearly, no course of action achieves all of these objectives, so you need to consider the trade-offs between the benefits offered by the various alternatives. For example, would the increased freedom of being your own boss be worth more to you than the possible short-term loss of income?

Second, the problem involves *uncertainty*. You are uncertain about the income that your consultancy business might generate, about the sort of work that you could get (would it be as satisfying as your friend suggests?), about the prospects you would face if the business failed and so on. Associated with this will be your *attitude to risk*. Are you a person who naturally prefers to select the least risky alternative in a decision or are you prepared to tolerate some level of risk?

Much of your frustration in attempting to understand your decision problem arises from its *complex structure*. This reflects, in part, the number of alternative courses of

action from which you can choose (should you stay with your present job, change jobs, change jobs and become a part-time consultant, become a full-time consultant, etc.), and the fact that some of the decisions are *sequential* in nature. For example, if you did decide to set up your own business should you then open an office and, if you open an office, should you employ a secretary? Equally important, have you considered all the possible options or is it possible to create new alternatives which may be more attractive than the ones you are currently considering? Perhaps your company might allow you to work for them on a part-time basis, allowing you to use your remaining time to develop your consultancy practice.

Finally, this problem is not yours alone; it also concerns your spouse, so the decision involves *multiple stakeholders*. Your spouse may view the problem in a very different way. For example, he or she may have an alternative set of objectives from yours. Moreover, he or she may have different views of the chances that you will make a success of the business and be more or less willing than you to take a risk.

The role of decision analysis

In the face of this complexity, how can decision analysis be of assistance? The key word is *analysis*, which refers to the process of breaking something down into its constituent parts. Decision analysis therefore involves the decomposition of a decision problem into a set of smaller (and, hopefully, easier to handle) problems. After each smaller problem has been dealt with separately, decision analysis provides a formal mechanism for integrating the results so that a course of action can be provisionally selected. This has been referred to as the 'divide and conquer orientation' of decision analysis.¹

Because decision analysis requires the decision maker to be clear and explicit about his or her judgments, it is possible to trace back through the analysis to discover why a particular course of action was preferred. This ability of decision analysis to provide an 'audit trail' means that it is possible to use the analysis to produce a defensible rationale for choosing a particular option. Clearly, this can be important when decisions have to be justified to senior staff, colleagues, outside agencies, the general public or even oneself.

When there are disagreements between a group of decision makers, decision analysis can lead to a greater understanding of each person's position so that there is a *raised consciousness* about the issues involved and about the root of any conflict. This enhanced communication and understanding can be particularly valuable when a group of specialists from different fields have to meet to make a decision. Sometimes the analysis can reveal that a disputed issue is not worth debating because a given course of action should still be chosen, whatever stance is taken in relation to that particular issue. Moreover, because decision analysis allows the different

stakeholders to participate in the decision process and develop a shared perception of the problem, it is more likely that there will be a *commitment* to the course of action which is eventually chosen.

The insights which are engendered by the decision-analysis approach can lead to other benefits. Creative thinking may result so that new, and possibly superior, courses of action can be generated. The analysis can also provide guidance on what new information should be gathered before a decision is made. For example, is it worth undertaking more market research if this would cost \$100 000? Should more extensive geological testing be carried out in a potential mineral field?

It should be stressed, however, that over the years the role of decision analysis has changed. No longer is it seen as a method for producing optimal solutions to decision problems. As Keeney¹ points out:

Decision analysis will not solve a decision problem, nor is it intended to. Its purpose is to produce insight and promote creativity to help decision makers make better decisions.

This changing perception of decision analysis is also emphasized by Phillips:²

...decision theory has now evolved from a somewhat abstract mathematical discipline which when applied was used to help individual decision-makers arrive at optimal decisions, to a framework for thinking that enables different perspectives on a problem to be brought together with the result that new intuitions and higher-level perspectives are generated.

Indeed, in many applications decision analysis may be deliberately used to address only part of the problem. This *partial decision analysis* can concentrate on those elements of the problem where insight will be most valuable.

While we should not expect decision analysis to produce an optimal solution to a problem, the results of an analysis can be regarded as being 'conditionally prescriptive.' By this we mean that the analysis will show the decision maker what he or she should do, *given* the judgments which have been elicited from him or her during the course of the analysis. The basic assumption is that of *rationality*. If the decision maker is prepared to accept a set of rules (or axioms) which most people would regard as sensible then, to be rational, he or she should prefer the indicated course of action to its alternatives. Of course, the course of action prescribed by the analysis may well conflict with the decision maker's intuitive feelings. This conflict between the analysis and intuition can then be explored. Perhaps the judgments put forward by the decision maker represented only partially formed or inconsistent preferences, or perhaps the analysis failed to capture some aspect of the problem.

Alternatively, the analysis may enable the decision maker to develop a greater comprehension of the problem so that his or her preference changes towards that

prescribed by the analysis. These attempts to explain why the rational option prescribed by the analysis differs from the decision maker's intuitive choice can therefore lead to the insight and understanding which, as we emphasized earlier, is the main motivation for carrying out decision analysis.

Good and bad decisions and outcomes

Consider the following two decisions which are based on those used in an experiment carried out by Baron and Hershey.³

- A. A 55-year-old man had a heart condition and a physician had to decide whether to perform an operation which, if successful, would relieve the man's pain and extend his life expectancy by 5 years. The risk of the man dying as a result of the operation was 8%. The operation was performed and had a successful outcome.
- B. A 55-year-old man had a heart condition and a physician had to decide whether to perform an operation which, if successful, would relieve the man's pain and extend his life expectancy by 5 years. The risk of the man dying as a result of the operation was 2%. The operation was performed and, unfortunately, the man died.

Which was the better decision? In the experiment, people who saw decision A typically rated it more highly than those who saw B because it resulted in a better outcome. But, objectively, decision B carried much lower risks and offered the same potential benefits as A. This suggests that we need to distinguish between good and bad decisions and good and bad outcomes. A rash decision may, through luck, lead to a brilliant outcome. You may gamble your house on a 100-to-1 outsider in a horse race and win. In contrast, a carefully considered decision, made using the best available decision-analysis technique, and based on the most reliable information available at the time, may lead to disaster. This means that when we consider a single decision, the outcome usually provides, at best, only limited information about the quality of the decision.⁴

Outcomes across many decisions provide a better guide. If you are a newspaper seller and every day have to decide how many newspapers to have available for sale, your average profit over (say) the last 100 days will be a good guide to the quality of your decision making. You might be lucky and get away with a bad decision on a single day, but this is unlikely to be the case over a large number of days.

If decision analysis is being used to support a decision, how should we assess its effectiveness? Schilling *et al.*⁵ suggest three main criteria: the quality of the process that was used to arrive at the decision, output effectiveness and outcome effectiveness. The *quality of the process* is measured by such factors as the extent to which people in the organization participated in the decision-making process, and exchanged information,

the extent to which the process was transparent and comprehensible and how much it yielded insights into the problem. *Output effectiveness* embraces both 'hard' factors like increased profit and 'softer' benefits like the provision of a common language enabling different specialists to communicate and the development of a sense of common purpose amongst different stakeholders. *Outcome effectiveness*, which is usually more difficult to measure, relates to the long-term consequences of the analysis. Did the use of decision analysis help the decision makers to achieve their final objectives?

Applications of decision analysis

The following examples illustrate some of the areas where decision analysis has been applied.^{6,7}

Improved strategic decision making at Du Pont⁸

The Du Pont chemical company has used influence diagrams (Chapter 7) and risk analysis (Chapter 8) throughout the organization to create and evaluate strategies. The analysis has allowed them to take into account the effect on the value of the business of uncertainties such as competitors' strategies, market share and market size. Among the many benefits of the approach, managers reported that it enhanced team building by providing a common language for sharing information and debate. It also led to a commitment to action so that the implementation of the selected strategy was likely to be successful. One application alone led to the development of a strategy that was expected to enhance the value of the business by \$175 million.

Structuring decision problems in the International Chernobyl Project^{9,10}

Four years after the accident at the Chernobyl nuclear power plant in 1986, the International Chernobyl Project was undertaken at the request of the Soviet authorities. Decision analysis was used in the project to evaluate countermeasure strategies (for example, relocation of some of the population, changes in agricultural practice and decontamination of buildings). The use of SMART (Chapter 3) in decision conferences (Chapter 13) enabled groups of people from a wide variety of backgrounds – such as ministers, scientists and regional officials – to meet together to structure the decision problem. They were thus able to clarify and elucidate the key issues associated with the strategies, such as the number of fatal cancers which they would avert, their monetary costs, the extent to which they could reduce stress in the population and their public acceptability. By using decision analysis it was possible to evaluate the strategies by

taking into account all these issues, regardless of whether they were easily quantified or capable of being measured on a monetary scale.

Selecting research projects at a large international pharmaceutical company¹¹

Managers at a pharmaceutical company could not reach agreement on which of three large research and development (R&D) projects they should undertake in order to create value for the company. R&D projects in the pharmaceutical industry are characterized by great uncertainty arising from both threats and opportunities. Sometimes future opportunities may have no relation to the original purpose of the R&D project. For example, new and unexpected drugs are often developed from a particular molecule that has been screened. These opportunities can add substantially to a project's value. Decision trees (Chapter 7) were used to create transparent representations of the options that would be open to the company if each project was undertaken and the risk that would be associated with it. The trees enabled the managers to assess where decisions should be delayed until new information was available, where new opportunities might arise and be pursued and the conditions under which it would be appropriate to abandon a project. The approach drew attention to the key aspects of the problem and most importantly, allowed the flexibility of projects to be taken into account when they were evaluated, enabling a more informed decision to be made.

Petroleum exploration decisions at the Phillips Petroleum Company¹²

Petroleum exploration is notoriously risky. Scarce resources are allocated to drilling opportunities with no guarantee that significant quantities of oil will be found. In the late 1980s and early 1990s the Phillips Petroleum Company was involved in oil and gas exploration along the eastern and southern coasts of the United States. In deciding how to allocate the annual exploration budget between drilling projects, the company's managers faced two issues. First, they wanted a consistent measure of risk across projects. For example, they needed to compare projects offering a high chance of low returns with those offering a low chance of high returns. Second, they needed to decide their level of participation in joint drilling projects with other companies. For example, the company could adopt a strategy of having a relatively small involvement in a wide range of projects. The use of decision trees (Chapter 7) and utility functions (Chapter 6) allowed managers to rank investment opportunities consistently and to identify participation levels that conformed to the company's willingness to take on risk. Managers also gained insights into the financial risks associated with investment opportunities and their awareness of these risks was increased.

Prioritizing infrastructure-renewal projects at MIT¹³

The buildings and ground of the Massachusetts Institute of Technology (MIT) need to be maintained and renewed constantly, but the resources available for carrying out this work were limited. The department responsible for the work therefore needed a systematic method for prioritizing projects such as the maintenance of heating, ventilating, air conditioning, plumbing and electrical systems and the refurbishment and replacement of roofs. This prioritization needed to reflect the risk of not carrying out a particular project. A series of workshops involving members of the infrastructure renewal team took place. At these workshops a value tree (Chapter 3) was used to identify and agree the objectives against which the projects would be assessed. Typical objectives were minimizing impact on the environment, minimizing disruption to academic activities and minimizing impact on the public image of MIT. The Analytic Hierarchy Process (Chapter 4) was then used to assess the relative weights that should be attached to these objectives while utility functions (Chapter 6) were used to obtain a score for the consequences, in relation to each objective, of not carrying out a given project. By combining the weights and scores, an overall 'performance index' was obtained for the projects so that they could be prioritized. The application of these decision-analysis tools led to a number of benefits. It allowed people from different professional backgrounds to apply their expertise to the process and reach a consensus. It also provided a consistent and defensible rationale for the prioritization. Most notably, the fact that discussions took place in the workshops about risks, objectives and priorities led to a change of culture in the department so that people were more willing to address these issues in an explicit and structured way.

Supporting the systems-acquisition process for the US military¹⁴

In the past, the acquisition process for major military systems in the United States has been subject to much criticism because it did not produce defensible decisions underpinned by sound analyses and a clear rationale. As a result, decision-analysis techniques like SMART (Chapter 3) have been increasingly widely used to structure decision making at the various stages of the process. For example, when the US Army air defense community needed to establish the most cost-effective mix of low-altitude air defense weapons, decision analysis was used to help a group – consisting of both technical experts and senior officers – to rank alternative weapon mixes. The process enabled a large number of criteria to be identified (e.g., flexibility at night, refuel capability, capability of defeating an enemy fixed-wing aircraft) and allowed options to be evaluated explicitly by taking into account all these criteria. Where decisions involved several organizations, the decision model was found have a valuable role in depoliticizing issues.

Prioritizing projects in a busy UK social services department¹⁵

Kent Social Services Department is responsible for the provision of services to the elderly, mentally handicapped, mentally ill, physically handicapped, and children and families in south-eastern England. In the late 1980s managers in the department were facing an increasing workload with insufficient resources to handle it. The result was 'resource log-jams, random-seeming displacement of previously understood priorities, foreshortened deadlines, and an overall sense of overload and chaos.' Decision analysis, based on SMART (Chapter 3) and the V-I-S-A package, was used by key personnel to develop and refine a consistent and structured approach to project prioritization. It enabled the many attributes associated with a project – such as benefits to the service, monetary costs, workload involved and political pressures – to be assessed and taken into account. However, the key benefits were seen to emanate from the process itself. It allowed a problem which had been 'a fermenting source of unrest [to be] brought to the surface, openly accepted to be a problem and shared.' As a result, 'the undercurrent of discontent' was replaced by 'enthusiasm for action.'

Selecting a wide area network solution at EXEL Logistics¹⁶

EXEL Logistics, a division of one of the top 100 British companies which specializes in distribution solutions, has applied decision analysis to a number of problems. One problem involved the selection of a wide area network (WAN) for interconnecting around 150 sites in the UK. Seven alternative proposals needed to be considered. The decision was complicated by the need to involve a range of people in the decision process (e.g., professional information systems staff, depot managers and IT directors) and by the variety of attributes that applied to the WANs, such as costs, flexibility, performance, safety and supplier stability. By using decision conferencing (Chapter 13) together with SMART (Chapter 3), the team were able to agree a choice and recommend it with confidence to the company's board.

Planning under a range of futures in a financial services firm

ATM Ltd (a pseudonym) provides the electromechanical machines that dispense cash outside many of the banks and building societies in the UK. Auto-teller machines, as they are called, are ATM's main products. However, in the early 1990s, several of the executives at ATM were concerned that the use of cash might be in swift decline in the European Union since 'smart cards' – cards similar to debit cards but which store electronic cash – were being promoted by a competitor in the financial services sector. The executives did not feel able to predict the year in which cash transactions would

cease to be significant, nor did they feel able to assess the potential rate of decline. By using scenario planning (Chapter 16), they felt able to identify critical driving forces which would accelerate or decelerate the move away from cash. As a result, they felt better placed to anticipate and cope with an unfavorable future – if such a future did begin to unfold.

Supporting top-level political decision making in Finland¹⁷

Decision analysis based on the analytic hierarchy process (Chapter 4) has been used by groups of members (MPs) of the Finnish parliament to structure discussion and clarify their positions on decisions such as whether Finland should join the European Community (EU) or not. Such decisions are difficult because they involve many issues that are likely to have differing levels of importance. For example, in the EU decision, issues such as effects on industry, agriculture, national security, the environment and national culture needed to be addressed. The MPs found that the approach enabled them to generate ideas and structure the problems so that irrelevant or insignificant arguments were avoided in their decision making.

Automating advice-giving in a building society front office

Home Counties Building Society (a pseudonym) took advantage of deregulation in the UK financial services sector and investigated the possibility of offering tailored financial products – such as pension plans – at point-of-sale in their high-street branches. They found that tailoring financial products to client characteristics, although theoretically straightforward, would not be practicable given the limited expertise of counter staff. One solution was to capture the expertise of the senior pensions' adviser and deliver it via an expert system (Chapter 18) on a front-office desk. A clerk could type in client details and chat while the system matched the best pension plan, printed a hard copy of the details and explained – in plain English – the specific advantages of the recommended plan for the particular client.

Allocating funds between competing aims in a shampoo-manufacturing company¹⁸

The managing director of an operating company which manufactures and markets a well-known brand of shampoo in a particular country had been asked by head office to justify his very large advertising budget. The managers responsible for distribution, advertising and promotion met with support staff and advertising agency representatives in a decision conference (Chapter 13). However, the insights revealed by a

SMART model transformed their thinking and the problem was then seen as one of improving the allocation of funds between distribution, advertising and promotion in order to achieve the objectives of growth, leadership and profit. An EQUITY resource allocation model (Chapter 14) enabled the participants to evaluate the costs and benefits of combinations of strategies from each expenditure area. This led to agreement on an action plan which was implemented within a month.

Anticipating the need for doctors and dentists in the English National Health Service¹⁹

Doctors and dentists take many years to train in their various specialisms. But what will be the demand for these health-service professionals in 2030? A scenario exercise (Chapter 16) was conducted in England in 2012 to identify four different scenarios. Predetermined, or 'in-the-pipeline,' factors were identified – such as an aging, internet-saavy population – and uncertainties were also identified – such as the strength of the economy and the linked ability of the country to provide healthcare. These views of alternative futures were used to provide advice to the UK Government on 2013 student intake numbers in the health professions.

Monitoring early warning signals in the business environment at Nokia and Statoil²⁰

Nokia and Statoil have a history of combining scenario planning (Chapter 16) with 'early warning scanning,' focusing on enhancing managers' awareness of the occurrence of the early 'trigger' events that might indicate that a particular scenario is starting to unfold. Statoil was inspired by long-standing activity within the oil giant Shell, whereas Nokia's activities started around 1990 and were driven by top management. In both organizations, these activities were found to help reframe managerial attention (Chapter 15) and help determine where the companies should focus their new technology investments. Differences, over time, in their foresight activities have been analyzed and related to differences in the organizations' financial performance.²⁰

The future of electric-drive vehicles in Germany²¹

Individual mobility seems indispensable in modern society and in the last 10 years the total number of motor vehicles on the world's roads has increased by 25%. But, with the increase came related increases in noise exposure, air pollution, land fragmentation

and accidents. At the same time, substantial uncertainties are seen to dominate the future market uptake of electric vehicles – for example, in terms of battery technology and regulation changes. A range of scenarios (Chapter 16) for the transition from the internal combustion engine have been developed and considered by representatives from different sections of the German automotive industry. Differences in opinion between the industry representatives on some issues – such as whether the challenges of recycling batteries would be overcome – were resolved using a Delphi process (Chapter 13). On other issues – such as whether users would be willing to pay more for the new-technology vehicles – continuing dissent was identified and used as the basis for developing alternative scenarios.

Overview of the book

The book is organized as follows. Chapter 2 discusses the biases that can arise when *unaided* decision makers face decision problems involving multiple objectives. Chapter 3 then shows how decision analysis can be used to help with these sorts of problems. The focus of this chapter is on problems where there is little or no uncertainty about the outcomes of the different courses of action. Chapter 4 presents some alternative methods for handling decisions where there are multiple objectives. Uncertainty is addressed in Chapter 5, where we show how probability theory can be used to measure uncertainty, and in Chapter 6, where we apply probability to decision problems and show how the decision maker's attitude to risk can be incorporated into the analysis.

As we saw at the start of this chapter, many decisions are difficult to handle because of their size and complex structure. In Chapters 7 and 8 we illustrate methods which can help to clarify this complexity, namely decision trees, influence diagrams and simulation models.

Of course, all decisions depend primarily on judgment. Decision analysis is not designed to replace these judgments but to provide a framework which will help decision makers to clarify and articulate them. In Chapter 9 we look at how a decision maker should revise judgments in the light of new information, while Chapter 10 reviews psychological evidence on how good people are at using judgment to estimate probabilities. The implications of this research are considered in Chapter 11, where we demonstrate techniques which have been developed to elicit probabilities from decision makers. There is evidence that most managers see their role as one of trying to reduce and manage risks, where this is possible. In Chapter 12 we show how decision-analysis models can provide a structure for risk and uncertainty management so that the aspects of the decision that have the greatest potential for reducing risks or exploiting opportunities can be identified.

Although, in general, decisions made in organizations are ultimately the responsibility of an individual, often a group of people will participate in the decision-making

process. Chapters 13 and 14 describe problems that can occur in group decision making and discuss the role of decision analysis in this context. Special emphasis is placed on decision conferencing and problems involving the allocation of resources between competing areas of an organization.

Major errors in decision making can arise because the original decision problem has been incorrectly framed. In particular, in strategic decision making the decision can be formulated in a way which fails to take into account fundamental changes that have occurred in the organization's environment. The result can be overconfident decisions which are made on the basis of outdated assumptions. Framing problems and the cognitive inertia that can be associated with them are discussed in Chapter 15. In this chapter we also introduce Prospect theory, which explains why changes in the way a problem is framed can lead to different decisions. Chapter 16 shows how scenario planning, an alternative way of dealing with uncertainty, can help to alert decision makers to possible environmental changes when they are formulating strategies for the future. However, formal processes for evaluating and comparing strategies have been a neglected area of scenario planning so, in Chapter 17, we show how decision analysis can be combined with scenario planning to help decision makers choose between alternative strategies. Finally, in Chapter 18, alternative forms of decision support – such as expert systems and bootstrapping – are contrasted with the decision-aiding methods we have covered in the book. We also ask whether snap decisions, based on intuitive judgments, should have any role in management decision making and discuss how decisions might be designed so that people can be encouraged to choose the 'best' option. In addition, this last chapter looks at the key questions that a decision maker should consider in order to maximize the effectiveness of decision-aiding methods; it concludes with a summary of the types of problems that the different methods are designed to address.

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