Enterprise Risk Management

A Methodology for Achieving Strategic Objectives

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CHAPTER 6

Set Metrics for Defined Strategic Objectives

As I have mentioned, I have no intention of getting into the art of setting strategic objectives. Rather I will detail how to define (or set) metrics for each of your strategic objectives, assuming that you have defined the objectives already. Do not misunderstand my use of the word "set"; it does not relate to setting objectives, rather it relates to setting metrics that relate to the defined objective.

The objective of step 1 of the SOAR process, set, is to define metrics relating to each of the strategic objectives. Once the metrics are defined, step 1 demands that you determine target values for metrics. Note from the earlier discussion of SMART statements of strategic objectives that the process for defining metrics may lead you to modify or even abandon your objectives or simply to restate them. Step 1 of the SOAR process can provide valuable input for determining (or modifying) the strategic plan.

After you, the enterprise risk manager, have read the statement of the strategic objective, you must determine one or more metrics by which to manage the objective. The frequent measurement of the value of the metric(s) is critical to successful operation of both the SOAR process and the strategic plan. The natural consequence of successful execution of the strategic plan is achievement of the strategic objective. Chapter 7, which discusses step 2 of the SOAR process, observe, covers the frequent measurement of the value of the metric. For now let us consider the importance of measurement, because the fact that measurement is important means we have to *set* metrics.

Why Measure?

Let me quote Galileo again:

> *Measure all that can be measured and render measurable all that defies measurement.*
>
> —Galileo Galilei, 1564–1642

Measurement is absolutely fundamental to managing anything, and that, of course, includes strategic objectives. Think of a couple of things you manage every day and then consider whether you measure something in order to manage those things. One example might be your relationship with your partner. When you get home, he or she seems to be a bit grumpy and so you decide to tread carefully or maybe go straight back out for a beer. What have you done? You have measured the level of grumpiness exhibited by your partner, albeit implicitly. Or how about getting to that 8 a.m. meeting on time? Your aim is to arrive at 7:55, but you sleep through the alarm and wake 10 minutes later than planned. So you do everything a little more quickly to make up the 10 minutes lost; you measure the time and, just as you might do if you foresee failure to achieve a strategic objective, you react. The only difference between the examples I have given and the right approach to managing strategic objectives is the level of formality or discipline; the management of strategic objectives requires the application of a more formal or disciplined approach.

An old adage states that you cannot manage what you cannot measure. Measurement is the only way to be sure of your progress to date. It allows you to apply informed judgment in determining the most appropriate future actions. Measurement allows you to track where you have been and plan where you are going. When you meet an objective by some means other than by the execution of a plan to meet that objective, you should consider yourself incredibly lucky. Planning is the best way to ensure that objectives are met, and measurement is the best way to monitor how successful you are being in executing your plan.

Translating strategic objectives into target metric values is also a great way to make the objective and your progress more obvious. Although I am the first to admit that numbers can be ambiguous, I believe they are usually less ambiguous than words. I will use a few examples of statements of

strategic objectives from Chapter 4 and translate them into SOAR (metric) equivalents:

Statement 1: Our goal is to be the world's premier alternative investment platform and we have a unique business model designed to accomplish that objective.

SOAR (metric) equivalent: Our goal is to be ranked first in the 2008 "Alternative Investment Platform" survey.

Statement 7: Our aim is to be Australia's number one retailer in all our brands by delighting our customers, growing our shareholder value, and being the best team.

SOAR (metric) equivalent: Our aim is to be ranked first in the 2008 "Retailer of the Year" competition.

Do you see how much clearer the objective is when stated in SOAR equivalents, and how much more easily progress can be tracked? Right now it might be a bit of a stretch to see how much more easily progress can be tracked, but it will be clear soon. Reread the first statement and imagine you want to visually represent where you are today and where you want to be in the future. From Statement 1, you have only one helpful word: "premier." The translation of the statement into a SOAR (metric) equivalent presents a few useful words: "ranked first" and "'2008 Alternative Investment Platform survey.'" As you can see, when expressed in a SOAR (metric) fashion, the goal becomes much clearer. We can read exactly what we want to achieve, and we can read the measurement that will be applied to judge us. What would you do if you were asked to plot a graph representing the two statements of the same strategic objective? The expression in SOAR (metric) terminology would be easier to plot, right?

Classes of Metrics

I advocate classifying metrics into three categories. Although applying a classification may be confusing and is often a redundant, time-consuming, and argument-provoking exercise, I believe that by considering three different classes of metrics, you are more likely to think of things that can help you measure your progress toward achievement of your objectives from different angles. You are also more likely to think of each of the contributing forces more carefully. I do not mind if you end up deciding that you

do not know whether a metric should fall into category A or B or concluding that you cannot identify a risk indicator metric. That you have spent time trying is the important part. In most cases, you will have little difficulty determining the right metric for each class. In those cases where classification seems troublesome, it is probably not the classification system causing the difficulty; it is probably ambiguity in the objective. If so, clarify the objective first. I propose these three classes of metrics:

1. Strategic objective metrics
2. Risk driver metrics
3. Control metrics

Metrics for Strategic Objectives

A strategic objective must have at least one metric and may have several metrics associated with it. In order to manage strategic objectives successfully, it is important that you can monitor progress with relative ease. To this end, the SOAR methodology always reduces measurement to a single metric for each objective. So if you set yourself four strategic objectives, the SOAR methodology ultimately will guide you to the calculation of four metrics. To avoid confusion, I will refer to these as strategic objective metrics. When defining strategic objective metrics, look for the measurable part of the objective when expressed in a SMART manner; this will give you a great starting point for determining appropriate metrics. I say "starting point" for two reasons. The first reason is because, as we have seen, the metric for the strategic objective is not always apparent from the statement of strategic objective. Take this one as an example:

> Statement 3: Our aim is to improve the quality of life for our residents and businesses.

It is clear that we will need to consider and define an appropriate metric that measures quality of life. No such metric exists. However, as with most things, something similar probably does exist, and we can, at the very least, consider that existing thing before we try to create something completely new. For quality of life, the first thing that comes to mind is the measurement of standard of living. Another thing that comes to mind is the measurement of water quality.

The second reason I refer to the statement of strategic objective as the starting point for determining metrics is because I recommend you create a number of metrics, at least one from each class.

Metrics for Risk Drivers

I have no doubt that at least 50% of readers who have reached this point will start to question the sense of categorizing metrics into classes. Remember my rationale: It is to get you to think about all of the things that influence the outcome of your actions as you strive toward achievement of your strategic objectives and to do so from different points of view. It is a bit like using your eyes and ears when you cross the road. Must you use both senses to cross the road? Obviously not—blind people and deaf people manage to cross roads safely. In doing so, they rely more heavily on their remaining senses than people who have the luxury of both sight and hearing. That said, who do you think faces the more dangerous situation? Note that the increase in risk (or danger) is not due to a change in external or environmental factors; it is due to differences in approach. Similarly, you can define metrics relating to your strategic objectives without applying the classification proposed here. I would urge you not to take that shortcut, however, for a simple reason: An attempt to classify the metrics you come up with or to define at least one metric per class will give you the greatest chance of identifying *all* relevant metrics.

Metrics for risk drivers are quite often referred to as key risk indicators (KRIs) or early warning indicators (EWIs). They are predictors, or leading indicators, of risk. Measurement and monitoring of KRIs is absolutely essential to the successful management of strategic objectives. KRI measurement will almost certainly allow a proactive approach to risk management as opposed to a reactive one. With the right KRI monitoring processes in place, an organization should be able to minimize the possibility and/or impact of events that may adversely impact its ability to meet strategic objectives. In addition to managing risk through KRIs, the application of appropriate controls enhances an organization's ability to minimize the possibility and/or impact of events.

Soon we will examine methods for determining metrics of all classes. For now, let me present an example of a risk driver metric (or KRI or EWI, whatever you want to call it) for one of our example statements of strategic objective.

Statement 3: Our aim is to improve the quality of life for our residents and businesses.

When we set the risk driver metric, we are identifying something that indicates that we are straying from or, even better, *likely* to stray from our target value for our strategic objective metric. Of course, we will measure the actual value of our strategic objective metric frequently throughout the objective period; however, we use the risk driver metric as an advance warning that the next measurement of the strategic objective metric might not be favorable.

Indicators often are classified as either leading or lagging indicators. It should be obvious that we are looking to identify *leading* indicators. We want to identify risk (and control) indicator metrics that are predictive of the strategic objective metric.

Without explaining how I have determined the metric (we will examine methods for setting metrics in just a second), let me propose one for now. I propose that the risk driver metric for the strategic objective just mentioned be the number of complaints about services and that it be measured monthly.

Metrics for Controls

As we have discussed, controls are safeguards that the organization has put in place in order to minimize the probability of an event occurring or to lessen the impact of an event if it does occur. It is vital that control metrics (or control indicators) be employed such that the organization can validate its risk mitigation strategies; that is, the organization must put in place processes that try to mitigate risk, and it must examine those processes in order to ensure that they are both well conceived/designed and well executed. Think of controls you may have put in place for your day-to-day life. You may have purchased medical insurance, for example. Does this reduce the likelihood of getting ill or suffering personal injury? Absolutely not. The insurance reduces the cost of medical expenses for medical services that bring you back to good health following injury or illness. In other words, it reduces the impact or severity of an event, should it happen. Let us say that you get hit by a car and suffer a couple of broken bones. An ambulance shows up and offers to take you to the nearest hospital. You

accept. Two months later the ambulance service provider sends you a bill. You call your medical insurance provider only to learn that ambulance services are not covered. Is that a fault in execution? No, the insurance is provided (or not, as the case may be) as per design. In hindsight, you should have paid the additional premium to get greater coverage. Now, had you "tested" the control at some time prior to your accident, you might have learned that your coverage was inadequate. In this example, the test could be as simple as calling your insurer and asking "Does my insurance cover ambulance services?"

Let us continue with the example strategic objective and define the control metric.

> Statement 3: Our aim is to improve the quality of life for our residents and businesses.

Again, I will not explain how I have determined the metric just yet. I propose that the control metric for this strategic objective be the number of times services have been tested by the enterprise risk management office during the month and that it be measured on a monthly basis. (In the case of both risk driver and control metrics, when I say "services," I am referring to things like waste management services, electricity, water, and postal services.)

Setting Metrics

So how do you define the relevant metrics for each strategic objective? It should be pretty easy to define metrics in the metrics for strategic objectives class by examining the "measurable" part from the SMART statement of the strategic objective. When I say "easy," I am not suggesting that the choice of metric will always be obvious. As the enterprise risk manager, you have to *make* it easy. You can make it as difficult as you like. Consider this example. Imagine the objective is "to increase profit by 10%." There is obviously some need to clarify the definition of profit (before or after tax, including or excluding depreciation, etc.), but apart from that, you should be close to setting "profit" as your strategic objective metric. Where you can *make* it more difficult is by considering the desirability of various outcomes. That would involve determining whether 11% was more desirable than 10% and 12% more desirable than 11%, and so forth. Then you would

have to determine which level of the metric (now including the desirability element) should be the target value. There is no need to go down that path in this case. Just set the metric to "growth in profit" and set the target value to 10% *or more.* An alternative is to use dollar equivalents. When deciding which to use (percent or dollars), you would choose the one that the people who are interested in the outcome understand more readily.

For risk drivers and controls, the best way to define metrics is to conduct an analysis to determine everything that influences the outcome of your objective. For some people, such an exercise could take more than a lifetime. Trust me; that is too long. If you are one of those people, you need to simplify in order to conduct the analysis in a reasonable time. (Or you go get the coffee and let someone else sort it out while you are gone.)

Let us try to think of something that seems like a complex strategic objective with myriad influences and then set about determining an adequate set of metrics for it. Imagine your organization aims to reduce the emission of greenhouse gases worldwide by 25% over the next 10 years. You are the director of enterprise risk management, charged with (among other things) applying a monitoring process that will give the organization the greatest chance of obtaining its objective. There is only one way to go: Immerse yourself in a cause-and-effect analysis. I will describe it here, then we will go back to our example.

Cause and Effect

A cause-and-effect analysis should also be thought of as an effect-and-cause or why, why, why? analysis, as it is a two-way street, and we all know that you have a much lower chance of being hit by a car as you cross a two-way street if you look both ways. By thinking of the analysis in both ways, you give yourself a much better chance of identifying everything you need to worry about. Say you wish to treat cancer in a patient, so you do some research and learn (only) that chemotherapy can have a positive effect. You go to your patient and say, "Chemotherapy offers you a great chance of beating this illness." Had you continued your research and worked in the opposite direction—that is, to understand the other effects of chemotherapy—you may well have offered your patient this more complete news: "Chemotherapy offers you a great chance of beating this illness but may cause severe nausea after each treatment and hair loss." The fact remains

that chemotherapy can cause a reduction in the cancer; by looking at all of the (possible) effects of chemotherapy we have realized that the outcome we seek is not the only likely outcome of the treatment.

It is often much easier to understand possible effects than it is to determine causes. This is because many times outcomes, or effects, are a consequence of more than one cause. A good way to begin your attempt to determine causes is to ask "Why?" at least three times. Just reflect on any episode of the television program *CSI* you have watched—a decomposing, mutilated body is found in a pool of dry blood in the middle of the Arizona desert; just one hour later (including ads), a jealous gay brother-in-law is convicted of murder, thanks to a tire track in the desert and a single hair found . . . somewhere. It turns out that it is not the apparent gunshot to the chest that caused death, but the combination of asthma, dehydration, and a snake bite! The enterprise risk management officer needs to be very concerned with the tangle of causes. Let us apply the why, why, why? approach to a more relevant example. Imagine you work for an airline that has aimed to increase profit on flights between Australia and several Asian destinations. After six months, you observe that profit is actually decreasing. To get the strategy back on track, you have to determine the cause of the erosion in profit. You seek the answer to the question "Why is profit decreasing?" and you find that it is because revenue has fallen while expenses remain the same. So you ask "Why has revenue fallen?" and you find that the marketing director decided to reduce fares to countries impacted by the 2005 tsunami, and the impact of the fare reduction exceeds the impact of higher volumes. So you ask "Why did the marketing director reduce fares to this level?" and you find that her bonus is based on volumes and she needed to increase volumes by 20% to achieve her (personal) target.

To ensure the greatest chance of achieving multiple strategic objectives, the enterprise risk management framework needs to understand and handle relationships between the myriad causes. To this end, the framework must include a formal analysis of these relationships. A common and very sensible approach is to represent causes and effects diagrammatically. Such a picture is often referred to as a strategy map and may look something like Exhibit 6.1.

One of the concerns I have with strategy maps is that a lot of people spend too much time on them. There is no limit to the number of ways the strategy map can be presented, and a person can get lost when thinking of

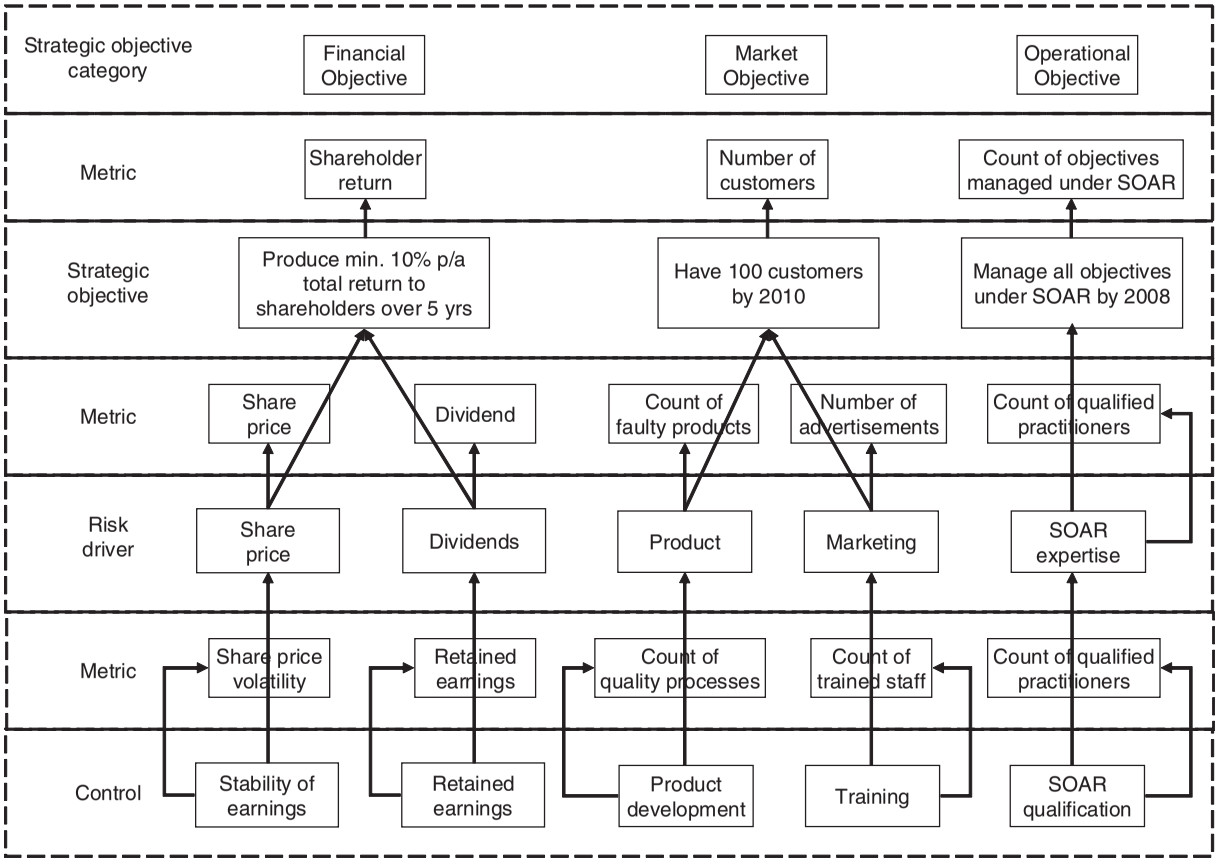

EXHIBIT 6.1 **STRATEGY MAP**

how best to represent the web of objectives, metrics, risks, and controls. I consider strategy maps essential visual aids, and I consider it equally important that such maps be created without *too much* thought. I am not sure how to define "too much," other than to suggest that you keep in mind that the map is just one tool you will use and you have a big job to complete; do not let the time you spend building the strategy map be disproportionate to the function it will serve. Keep in mind that most people will take a casual glance at the strategy map and say "Aha." A search for images on Google using the phrase "strategy map" returns over 1 million results—you could spend more than a lifetime just browsing images of maps created by others.

Just one more thing about the strategy map. It should be a living object, not a picture on a page as it is presented in Exhibit 6.1. Ideally, the enterprise risk manager should be able to extract data from (behind) the strategy map. Imagine if, while viewing the map in Exhibit 6.1 as, say, an .html page on your intranet, you could click on the box representing the metric "Shareholder return" and see past, present, and predicted future values of the metric. How powerful would that be? If you can do that, then you are really starting to bring the strategy and the management of the strategic objective to life. That surely must be one of the goals of the enterprise risk management office. The primary goal, of course, is to increase the likelihood of achieving strategic objectives.

Back to cause and effect and why, why, why? analysis. Do not be constrained to thinking that the latter analysis need only pose "Why?" questions. When determining metrics for strategic objectives, you can also ask "How?" and "What?" Examples might be "How are we going to achieve this objective?" and/or "What influences the outcome of this objective?" Let us try one of these questions on our greenhouse gases example. In this case, I recommend starting with "What?": "What produces greenhouse emissions?" Research will quickly reveal that coal-burning electricity plants make an enormous contribution to greenhouse gases. Without any further investigation, we might propose reducing the use of coal-burning electricity plants in order to achieve our objective of a reduction in the emission of greenhouse gases. Let us continue down the greenhouse path and ask: "How are we going to achieve this objective?" Well, the answer to our "What?" question tells us that the "How" may have something to do with reducing reliance on coal-burning electricity plants. For the purpose of this example, we will run with that and answer the "How?" question by

saying "We will strive to achieve our objective of reducing the emission of greenhouse gases by reducing our use of coal-burning stations by 25%." Before we proceed to ask "Why?" we should check our current position. By asking "What?" we determined that coal-burning plants have an enormous impact on greenhouse gas emission levels. By asking "How?" we determined that we could reduce greenhouse gas emission levels by reducing our reliance on coal-burning plants. Next, we should proceed to think about appropriate metrics. Well, in this example, it is a no-brainer: One metric must be the volume of electricity produced by coal-burning generation plants. Let us now validate that metric by asking "Why would we measure the level of production of coal-burning electricity generation plants?" I could, of course, answer that question for you, but I will not. If you cannot answer it, you need to reread this section until you can. If you have read this section more than three times and still cannot answer the question, I would like you to close the book and either put it back on the shelf or give it to your 2IC.

Some readers may find the next statement redundant. For each metric, you must specify the unit of measure. Say no more. Well, except to say that some units of measure are more relevant than others.

Some tools you might like to apply to assist in setting metrics follow. Rather than telling you what they are or what they do, which is information you can get from probably tens of thousands of Web sites, I will focus on their application to setting metrics.

Cause-and-Effect Diagrams

We already have discussed cause-and-effect analysis, so there is no need to go over old ground. The diagram is just a visual representation of—you can see it coming, right?—causes and effects. It is useful in the application of the SOAR process because it provides a view on the relationships between metrics. I mean, if you have identified something as either a cause or an effect, you will have attached a metric to it, so you will be able to see the relationships between the metrics.

Causal Loop Diagrams

Causal loop diagrams help users visualize the nature of the impact of a cause; that is, does it make a positive or a negative contribution toward our

objective? Generally, we set risk driver metrics for causes that make a negative (or opposite) contribution to the desired outcome and control metrics to causes that make a positive (or same) contribution. You might find an inclination to focus on the "reinforcing" loops (those that make a positive contribution), as these represent progress (for want of a better term). I advise against this bias. While it is the engine that gets the car where you want it to go, you should keep the windshield wipers in good repair in case it rains.

Process Flow Charts

I have to admit, I despise process flow charts. To me, they reek of bureaucracy, and I shudder at the thought of dusty, outdated manuals piled in office corners or, even worse, filed in a cabinet in the basement. They do, however, serve as a useful reference that can help you identify points of possible failure and therefore set risk driver and control metrics. So if your strategic objective relates to something for which a process flow diagram exists, take a look at it. Imagine your strategic objective is to manage the risks associated with strategic plans according to the SOAR methodology. If you are trying to set risk and control metrics, you could use the SOAR process flow diagram as a reference. (See Exhibit 6.2.)

With little effort, we can set a number of risk driver metrics, such as:

- The number of strategic objectives for which metrics have not been defined
- The number of times metric values have not been observed

We can also set some control metrics, including:

- The number of reviews of cause-and-effect analysis
- The degree of *correlation* between risk driver metrics and strategic objective metrics

I would like to spend a minute discussing correlation. Think of correlation as the degree to which two metrics are related or, if you like, the strength of the relationship between two metrics. An example of the use of the term "correlation" is: There is a high correlation between sales of umbrellas and rainfall. This sentence means that the relationship between sales

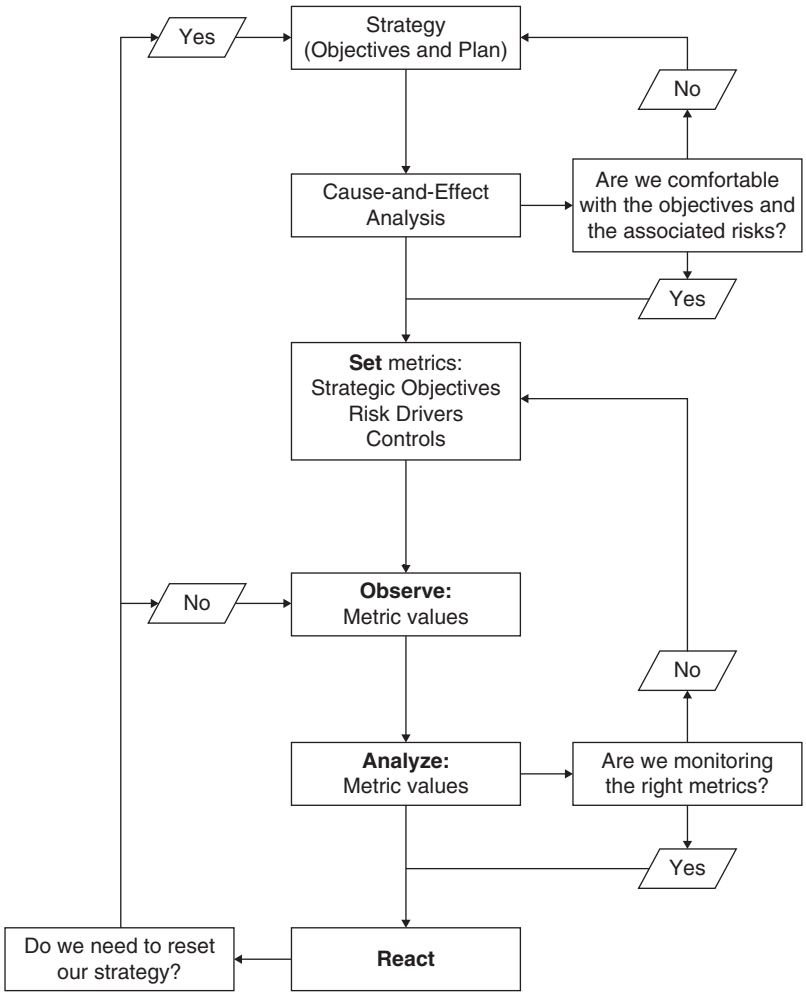

EXHIBIT 6.2 **SOAR PROCESS**

and rainfall is strong. With reference to our greenhouse gases example, we could say that there is a high correlation between the volume of electricity produced by coal-burning generation plants and damage to the ozone layer. The measurement of correlation between risk driver metrics and strategic objective metrics (and also between control metrics and strategic objective metrics) is an important aspect of the SOAR process. Measurement of correlation is performed in step 3, analyze, of the process and helps

answer the question: Are we monitoring the right metrics? We discuss this again in Chapter 8.

Regression Analysis

Although I believe that the application of regression analysis to setting metrics is limited, I think it at least worth a mention. For some strategic objectives, you may have sufficient data on both the strategic objective metric and the risk driver/control metrics to make regression analysis worthwhile. Very simply stated, regression analysis is about the determination of the relationships between causes and outcomes. In this regard, it has some similarity to correlation (i.e., they both involve the examination of the relationships between variables). Correlation is limited to the measurement of the relationship between two variables, while regression analysis can handle more than one explanatory variable and can describe the relationship between variables in greater detail. I do not think it is worth spending too much time on regression analysis here. Suffice it to say that it may be valuable in helping you discover/validate risk driver/control metrics. If you have adequate historical data, get your analyst to give it a shot.

Sensitivity Analysis

Similar to regression analysis, sensitivity analysis requires a bit of data. If you have the data available, I highly recommend that you apply sensitivity analysis to help you determine where your focus should lie. Basically, sensitivity analysis helps you determine the relative importance of your risk driver and control metrics (i.e., it reveals the degree of influence each risk driver/control metric has on the strategic objective metric). This very simple example can illustrate. Imagine we have this function to describe a strategic objective metric:

$$\mathrm{SOM} = \mathrm{X} - 2 \times \mathrm{Y}$$

A movement of 1 in X is going to cause a movement of 1 in SOM. A movement of 1 in Y is going to cause a movement of −2 in SOM. SOM is twice as sensitive to movements in Y as it is to movements in X. You get two things out of sensitivity analysis: From the model that describes the

strategic objective metric, you get some very good indication of risk driver/control metrics, and from the analysis itself, you get an appreciation of the relative importance of the risk driver/control metrics that you can use to ensure appropriate assignment of resource.

If, for example, you are a retailer of watches and you have a truckload of historical data available, you might be able to determine how sensitive sales volumes are to all of the different variables: price (seems like a pretty obvious one), time of year, dollars spent on marketing, and so on. By observing how one variable (e.g., sales volume) relates to another (e.g., price), you can easily determine risk and control metrics. If your analysis reveals that dollars spent on marketing have twice the impact of adjusting the price, you would concentrate on marketing.

Scenario Analysis

Sometimes referred to as what-if analysis, scenario analysis employs expert judgment to determine a range of risk scenarios and their outcomes. It is employed to help you gain an understanding of possible outcomes should certain events transpire. The experts are responsible for defining the scenarios: the things that may happen (leading to an event) or the events that may transpire. Exhibit 6.3, first presented in Chapter 1, shows the "flow" of risk in the risk universe.

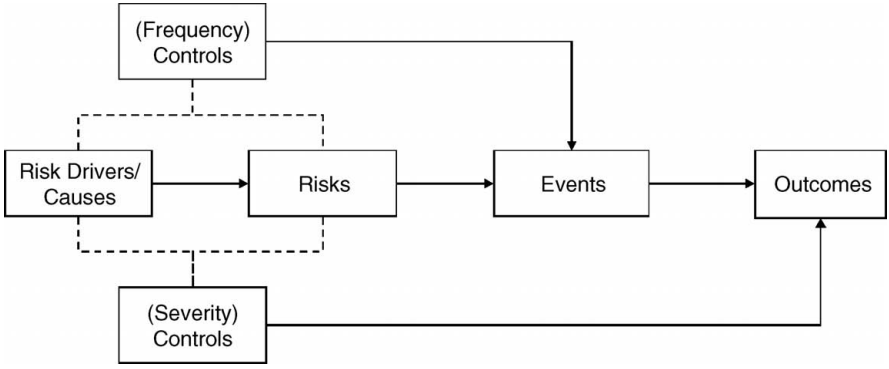

EXHIBIT 6.3 **RISK UNIVERSE**

In scenario analysis, we are considering what might happen along the path to an outcome. We can jump in at any point, from possible values of metrics for risk drivers and controls, through possible events to possible outcomes. Scenario analysis typically is conducted in a workshop. As I said, scenario analysis usually is based on expert judgment, so the workshop brings the experts together to . . . think! Ideally, the experts are trying to imagine scenarios relating to new points on the distribution of possible outcomes.

Remember that what we are striving to understand is the distribution of possible outcomes, where the outcome of most interest is the future value of our strategic objective metric. We want to be able to *visualize risk* through the probability distribution, which might look like Exhibit 6.4.

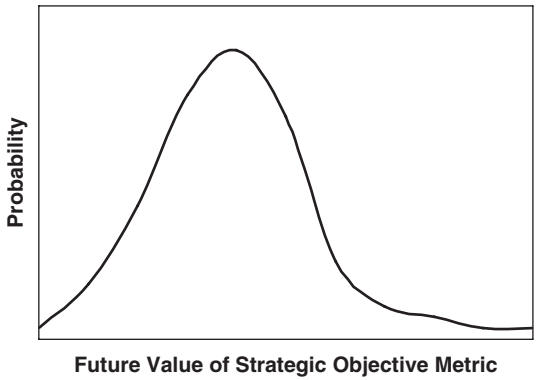

EXHIBIT 6.4 **PROBABILITY DISTRIBUTION AS A VISUALIZATION OF RISK**

Of course, some values on the axes are required, but not for our current purpose. With in mind the aim of plotting outcomes, the job of the workshop participants comes down to generating a set of pairs of numbers. Each pair of numbers comprises a future metric value and a probability. The output of the scenario analysis might be something as easy as a table containing a description of the scenario, a probability *estimate* and a metric value *estimate.* Exhibit 6.5 is an example.

By the way, do not spend any time considering the validity of the numbers in Exhibit 6.5; it is just an example of how the results of the scenario analysis might be presented.

EXHIBIT 6.5 **EXAMPLE RECORD OF SCENARIO ANALYSIS**

Description of Scenario	Probability that Scenario Will Occur	Metric Value if Scenario Occurs
Global increase in demand for electricity of 15%	5%	3
Lack of acceptance of nuclear power plants as a substitute for coal-burning power stations	10%	2
Broad public acceptance of the contribution of coal-burning power stations to global warming	2%	7

If you spend one or two minutes considering the example outputs in Exhibit 6.5, you might realize a couple of things and raise a couple of questions. Your realizations/questions might include:

- How do the experts determine the probability?
- How do they determine the metric value?
- There could be thousands of possible outcomes.
- Those numbers might be hard to validate; should we really rely on them?

Good questions! A fair and common criticism of scenario analysis is that it is often hard to substantiate. For our purpose, though, that does not really matter. We are using scenario analysis as a tool to help identify metrics relating to strategic objectives. We may or may not use the probability and outcome estimates generated by the experts, but we will use the scenario descriptions—they might imply a metric we had not thought of.

Let me take a moment to explain why "estimate" appears in italics in my earlier statement that the output of the scenario analysis might be something as easy as a table containing a description of the scenario, a probability *estimate* and a metric value *estimate.* It is to remind you that the numbers we are producing are . . . estimates, not, for example, historical observations.

Examples of Metrics

Exhibits 6.6, 6.7, and 6.8 are a few examples of useful metrics for each of the objective classes.

EXHIBIT 6.6 **EXAMPLE METRICS RELATING TO FINANCIAL OBJECTIVES**

Objective	Metric Class	Metric
Growth in sales	Objective	Monthly/annual sales
	Risk driver	Number of active sales opportunities/orders
	Control	Percent of salespeople who have attended the sales training course

EXHIBIT 6.7 **EXAMPLE METRICS RELATING TO MARKET OBJECTIVES**

Objective	Metric Class	Metric
To be ranked number 1	Objective	Rank according to some survey
	Risk driver	Results of minisurveys
	Control	Count of customer complaints

EXHIBIT 6.8 **EXAMPLE METRICS RELATING TO OPERATIONAL OBJECTIVES**

Objective	Metric Class	Metric
Reduce operational error	Objective	Error rate (e.g., count of erroneous transactions/total number of transactions)
	Risk driver	Number of transactions performed per person
	Control	Percent of staff performing transactions who have attended the transaction processing training course

Setting Target Values for Metrics

Determining a (single) target value for each metric for each strategic objective (i.e., for all metrics within the strategic objective class) is paramount to successful execution of the SOAR process. In effect, attaining the target value of the metric becomes your objective, as the enterprise risk management officer. If the target value is correctly determined, reaching the target value is the same as achieving the strategic objective. So it is very important to determine the target value of the strategic objective metric correctly.

Sometimes this is a very straightforward exercise; usually this is the case for financial objectives. It becomes harder to determine target metric values when you incorporate the notion of desirability discussed earlier. Take the case where your objective is to be spoken of favorably in the press. What should the target value for your metric be: 5? 50? 500? 22? The answer, of course, is that it does not matter what value you set as the target for the metric. What is important is that you put in place a sensible system of measurement, including a measurement scale, for the metric and that the target value makes sense under that system.

The concept of scale is an important one to address. If you are measuring the distance between two cities, you would probably choose miles or kilometers as your unit of measure, although there are a number of other reasonable choices and hundreds of unreasonable ones. Another reasonable choice might by flight time. An unreasonable choice would be pillows. It is possible to measure the distance between two cities by the number of pillows that could be placed end to end between the two places, but that is a pretty silly way to do it. So we should discuss scales and systems of measurement in a little more detail, and now is as good a time as any.

Generally, choosing a system of measurement, including a measurement scale, is a subjective exercise. In some cases, your choice set may be limited and obvious, but this will not always be the case. If your objective relates to air quality, for example, you might choose to refer to ISO (International Organization for Standardization) 4226:1993 Air Quality—General Aspects—Units of Measurement. You might wish to refer to that if you are having trouble sleeping too. It is difficult to imagine a case where only one system of measurement is possible. Even in those cases where it seems pretty clear what system should be applied, it is probably quite easy to suggest a reasonable alternative. Let us say your objective is to achieve sales of CAD500 million. This one seems pretty straightforward: Your system of measurement should have a lot to do with the (accounting) system you use for the capture of sales information. But CAD500 million might represent 50 million units (at CAD10 each). Or it might represent an increase of 10% on last year. The point is that there are a number of suitable metrics and measurement systems. Even if we agree that the metric will relate to the objective of CAD500 million (as opposed to, say, units or percentage increase), what should the target metric value be: 500? Seems reasonable. But it could just as well be 50, and the system of measurement could

employ some function like "sales in CAD divided by 10" to calculate the metric value.

Some points to consider when choosing a system of measurement for your metrics follow.

- Keep it as simple as possible, both conceptually and computationally. In our example, we could have set the metric value to be equal to the natural log of the square root of sales if we had really wanted to. But what is the point in that? If you make it complex, you are just going to have to spend time explaining it to someone. Once you have come up with the measurement system, imagine trying to answer this question posed by a senior manager: "Why do you measure it that way?"
- Make sure it is intuitive. If you are a Canadian company that measures sales in CAD and you have an objective to achieve sales of CAD500 million, Canadian dollars seems like a reasonable choice for your unit of measure. You could choose euros, if you like, and convert the CAD sales information from your accounting system to euros each reporting period, but that would be a strange thing to do.
- Make sure the scale is appropriately granular. Although it is possible to measure the thickness of a human hair in kilometers, that would be a very strange choice of unit of measure. You really want a system where the value can be expressed in whole units, or possibly one level below that, to one decimal place, for example. To say that a strand of wool is 0.000000000000016 kilometers thick is not really helpful, but to say that a typical strand is 16 microns thick and ranges from 5 to 25 microns is more enlightening, even if you (like me) do not know what a micron is.
- Try to keep any requisite mathematical manipulation as simple as possible. Simple functions, such as multiply and divide, are commonly understood (even among those in senior management), but do not try anything much more tricky.
- Where possible, employ a commonly accepted system without changing it. If you are a Canadian company that measures sales in CAD and you have an objective to achieve sales of CAD500 million,

> Canadian dollars seems like a reasonable choice for your unit of measure, and you may as well apply the *system* that goes with it: that 2 is bigger than 1, for example, and that it operates in base 10. Having said that, I would love to see someone try to explain that a system of measurement for a metric is similar to that used for Canadian dollars, except that it is in base 9.

Unlike strategic objective metrics, control and risk driver metrics do not require target values. This is not to say that they *should* not have target values; indeed, in some cases, setting target values for control metrics is a very good idea. You probably will find you need to exercise a little more lateral thinking when determining measurement systems for control and risk driver metrics than is required for strategic objective metrics (particularly strategic objective metrics for financial objectives). This is due to the fact that many controls and drivers do not really have popular metrics. Let us take the case of an aircraft early warning system, a device found in aircraft that gives early warning of a possible midair collision with another aircraft. It is a control. Or is it? I sometimes get confused between risk drivers and controls. I mean, this one strikes me as a control, because it is referred to as an early warning system and it is intended to give warning of a possible collision, but then I think about it as just the device for recording and reporting the values of a risk driver metric. The risk driver metric is the distance between the two aircraft. The device has predefined triggers that alert you when the risk driver metric hits a certain level (i.e., the distance between the two aircraft becomes too small). But it is a control, for sure; it is something that has been put in place to reduce the possibility of an event. Up in the air, the pilot probably has a light on the dashboard that indicates whether the system is active or not. That light is a control. So should the metric for this control be something that can take just two values representing either "active" or "inactive"? Seems reasonable to me.

Let us try something else. Imagine your strategic objective is to be rated number one in customer service and a control you have in place is the provision of customer service training to all customer-facing staff. What should your metric be, and what should the measurement system look like? Well, let us agree (or agree to disagree; it is up to you) on the metric

first. As will quite often be the case, there are a number of reasonable options (and thousands of absurd ones). I am going to suggest that the metric be the average score received in the customer service training final exam. (If you like, take a few minutes to consider options and even different ways of calculating the average.) Having selected the metric, the choice of measurement system is really quite straightforward; just use the results from the exams. The only question, really, is one of expression; do you maintain the percentage format applied to the exam results, or do you take absolute values? Here is one way to resolve that dilemma: Ask yourself "Who cares?" If the answer is "no one" (or "no one worth worrying about"), then flip a coin.

By now you should be getting some notion of one of my underlying doctrine, but I will articulate it here just in case. There is no need to strive for perfection in order to implement the SOAR methodology successfully. Just like a recipe, the methodology prescribes steps, ingredients, and measures, but you do not have to be precise when following the recipe; think of it as a guide. The more expert you become in the SOAR methodology, the less you need to refer to the recipe. We are all a bit different, and the world would be no fun if we were all the same. Add a pinch of salt if you like, or put the milk in *before* the egg. Go on, I *dare* you. I'd rather you think about the fact that you have guests arriving who expect to eat before midnight than worry about whether the teaspoon you have just grabbed from the drawer is a standard size. Does it look more like a teaspoon than a tablespoon? Fine, it will do. I am confident that if you apply the SOAR methodology in a disciplined fashion, you will help your organization be more successful in attaining its strategic objectives.

Despite all of the references to cooking, I offer this advice for the execution of the SOAR methodology: Do not make a meal of it. If you need to define a metric, just consider a few options and choose one within a reasonable time frame. If you need to choose a system of measurement, just consider a few options and choose one within a reasonable time frame.

We are nearing the end of the set step of the SOAR process, so I would just like to note the key points about setting metrics:

- A strategic objective is represented by a single strategic objective metric under the SOAR process.

- For each strategic objective, you should attempt to define a risk driver metric and a control indicator metric in addition to the strategic objective metric.
- A metric has a unit of measurement and a measurement scale associated with it.
- You must define a target value for the strategic objective metric.
- It may be valuable to define trigger values for risk driver and control metrics.