

Understanding Risk Attitude

CHAPTER

1

Dealing with risk for life and business

Life is full of risks. Every day people make decisions where the outcome matters but where the conditions surrounding the decision are more or less uncertain. Faced with these circumstances, most people have developed habits and strategies that enable their lives to 'free-flow' for much of the time. It is only in the presence of an unusual risk that people may be conscious of the need to make a choice.

The management of these uncertain situations that matter, also known as risk management, is a discipline in its own right. It has an established role in business, and is applied at a wide range of levels, including management of strategic risk, corporate governance, operational risk, project risk and health, safety and the environment (HSE). However, risk management is not just important for business. There is increasing interest in the application of effective risk management in society at large. A number of groups across government and academia have recognized the need for a more considered and responsible approach to risk, and highlight the urgent need for people to embrace 'appropriate risk-taking', both individually and in their working and social groups, supported by government and wider society.

By defining risk simply as 'uncertainty that matters', it is clear that knowing how to take appropriate risks in any particular situation requires an understanding of two things: the sources and nature of uncertainty, and the degree to which something matters. It is also clear that different things matter to different people to a different extent in different circumstances. As a result, a risk perceived by one person or group as requiring urgent attention may be perceived by others as normal and not worthy of their time. The perception of risk is not an absolute, either present or absent, but is situational and highly dependent on a number of contextual factors. It is this situational aspect of risk that makes the subject of decision-making in uncertain situations both fascinating and important.

Taking appropriate risks requires an underlying understanding of the nature of the challenge. On the one hand, managing risk can be seen as a rational and logical process requiring a grasp of factual historical evidence combined with mathematical assessments of the likelihood of the uncertain event occurring. It is however equally true that managing risk involves the deepest workings of the human brain, as the decisions people make are influenced by a complex interplay of conscious and subconscious factors. This is why one essential component of appropriate risk-taking is an understanding of risk attitude as it applies to individuals and to decision-making groups.

Talking about risk will lead many people to think only about threats, that is, those uncertainties that should they occur would result in an undesirable outcome. However, contemporary management thinking and practice treats risk in a more balanced way. An uncertain set of circumstances could equally lead to positive outcomes, allowing the definition of risk to encompass both opportunities and threats. This double-sided concept of risk is particularly important in the context of effective decision-making, because most decisions need to balance the exploitation or enhancement of hoped-for positive outcomes with the avoidance or mitigation of unwelcome negative ones.

For example, deciding whether to exceed the speed limit when driving a car will depend on a number of uncertainties, including opportunities such as getting to the destination more quickly, and threats such as being arrested or killed during the process. Similarly, deciding whether to seize a business opportunity to launch a new product on to the market before the competition needs to be balanced against the threats to the company's reputation if the new product is not trouble-free. Although each decision is unique, there are no risk-free options. Moreover, zero risk is not only unachievable, it is also undesirable. Failing to take risk would stifle growth and limit improvement. Appropriate risk-taking promotes competitive advantage and stimulates innovation and creativity. Decision-making in a world that is full of 'uncertainty that matters' needs to find an optimal balance of threats and opportunities. The challenge for finding an optimal balance are depicted in Figure 1.1; not too safe, or too unsafe with respect to risks that would mean something bad for objectives, and not too optimistic, or too pessimistic with respect to risks that could create additional value.

Achieving the goal of an optimal balance of threats and opportunities requires a clear understanding of the nature of risk as well as the ability to determine the influence of risk attitude on decision-making.

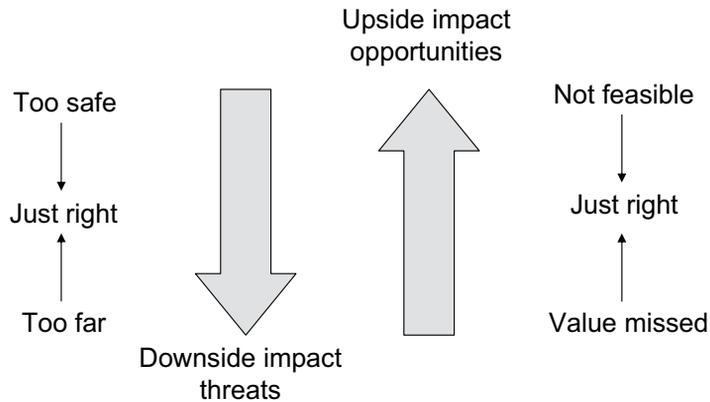


Figure 1.1 Appropriate risk-taking requires optimization of opportunities and threats

Challenges when assessing risk

Risk has two sides: uncertainty, which can be expressed as ‘probability’ or ‘likelihood’; and how much it matters, expressed as ‘impact’ or ‘consequence’. Both of these dimensions need to be understood so that good decisions can be made. If an uncertain event is very unlikely then it might be appropriate to take no explicit action, even though the consequence of that event on objectives would be very significant should it occur. However, different individuals or groups may perceive both likelihood and consequences differently, leading to different decisions.

Take the example of deciding whether to invest time and money in a new business venture, providing coffee for business rail commuters. Of course consumer habits could change for any number of reasons, with a significant beneficial or detrimental effect on coffee sales. However, assessment of the likelihood, nature and scale of any change is largely a matter of perception. Appropriate risk-taking means that people take chances. The degree of effectiveness of that risk-taking depends on how well people understand the chances that they take, and whether they embrace the consequences should the situation turn out differently from their expectations.

If a number of people were faced with the same decision about whether to invest in the business commuters coffee venture, different choices would inevitably be made, driven by the perception by each individual of the underlying risks and the degree to which they mattered. Some people might be highly uncomfortable with the perceived uncertainties and be *averse* to an

uncertain outcome; this might lead them to seek certainty even if that meant not pursuing the venture. Others could be quite comfortable with their perception of the uncertainties and *seek* to pursue the venture and take their chances along the way. Another group might be more *tolerant* of the underlying uncertainties, with less strong feelings of comfort or discomfort. Still others could be uncomfortable with ambiguity in the long term so would be prepared to take whatever short-term actions were necessary to deliver a certain long-term outcome: a *neutral* position.

The words 'averse', 'seeking', 'tolerant' or 'neutral' represent a chosen response to uncertainty that matters, driven by perception. This phrase forms a working definition of *risk attitude*, which is a choice made by a given individual or group in the face of a particular risky situation, and which is affected by a range of perceptual factors (these are discussed below).

Labels like risk averse, risk seeking, risk tolerant and risk neutral are useful headlines to describe alternative positions adopted by people when faced with uncertainty. Although labels provide valuable shorthand, their use should not hide the fact that risk attitude exists on a continuous spectrum, as illustrated in Figure 1.2. There are an infinite variety of possible responses to risk which can be displayed by a particular individual or group, but the four basic positions

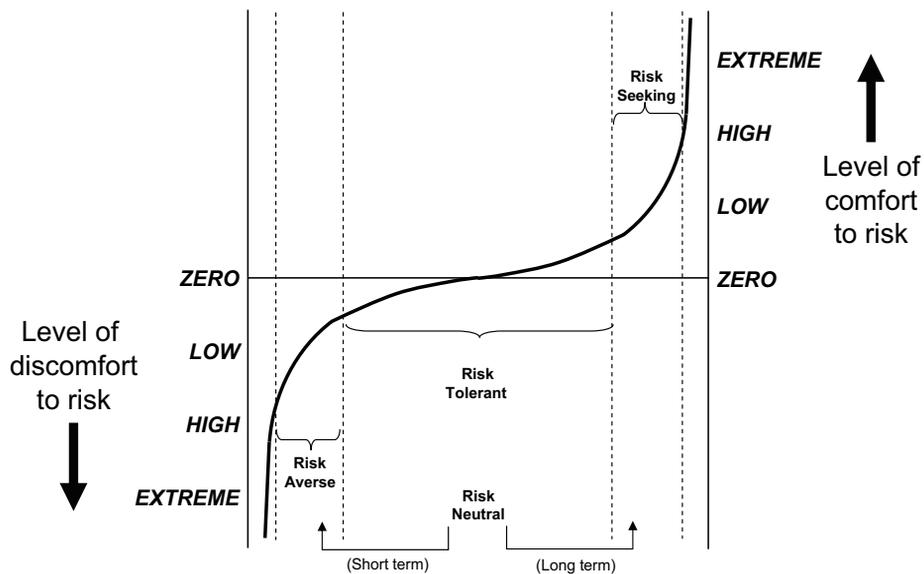


Figure 1.2 Risk attitude spectrum

(adapted from Hillson and Murray-Webster, 2007)

allow a generalized discussion of the topic. These four fundamental risk attitudes are summarized in Table 1.1.

We have explored in other published work how risk attitudes are formed, and concluded that they are usually adopted subconsciously, except when a person or group consciously decides to override their automatic response in order to make a more appropriate choice. Our previous work revealed that the perceptions driving risk attitude are influenced by many factors. These can be grouped under three headings: conscious assessments which are largely rational; subconscious factors including heuristics or mental short-cuts and other sources of cognitive bias; and gut-level affective factors, including feelings and emotions. Table 1.2 provides a composite list of the factors covered by each heading, drawing on the work of various authors, some of whom use different terms to describe the same factor.

Although the various factors affecting perception of risk can be detailed separately under the three headings of conscious, subconscious and affective factors, they do not exist or operate in isolation. They form a triple strand of influence, combining to affect how an individual or a group responds in any given situation, as illustrated in Figure 1.3.

The following paragraphs describe each of three strands in turn. However, while each strand can be teased out separately to aid understanding and explanation, in reality the three are intertwined and each affects the others. There are many cross-links between the different influences on perception, forming a complex web whose effect can be hard to predict.

Table 1.1 Definition of basic risk attitudes

Term	Definition
Risk averse	Uncomfortable with uncertainty, desire to avoid or reduce threats and exploit opportunities to remove uncertainty. Would be unhappy with an uncertain outcome.
Risk seeking	Comfortable with uncertainty, no desire to avoid or reduce threats or to exploit opportunities to remove uncertainty. Would be happy with an uncertain outcome.
Risk tolerant	Tolerant of uncertainty, no strong desire to respond to threats or opportunities in any way. Could tolerate an uncertain outcome if necessary.
Risk neutral	Uncomfortable with uncertainty in the long term so prepared to take whatever short-term actions are necessary to deliver a certain long-term outcome.

Conscious factors (situational and rational)	Subconscious factors	Cognitive bias	Affective factors (emotions and feelings)
<p>Familiarity I've/we've done something like this before, or I've/we've never done something like this before</p> <p>Manageability I/we know what to do to manage this, or I/we don't know what to do to manage this</p> <p>Proximity If it happens it will happen soon so we need to sort it now, or it wouldn't happen for ages, we've got time</p> <p>Proximity If it happens it would really matter to me/us personally, or if it happens it would affect objectives, but it wouldn't really matter to me/us personally</p> <p>Severity of impact If it happens the effect would be huge (or insignificant)</p> <p>Group dynamics and organizational culture The norms of how this particular group behaves</p>	<p>Heuristics</p> <p>Intuition Feels right, I won't look for any more data</p> <p>Representativeness This must be like this other one I've seen before</p> <p>Availability Most recent data is most memorable. Closely linked to reality traps where 'too much value' is attributed to existing situations, blinded by what is, we cannot see what might be if we could disengage from reality'</p> <p>Confirmation trap Undue confidence – selective perception: trust me, I'm a...?</p> <p>Lure of choice Biased by options that include future alternative judgements – keeping options open</p> <p>Affect heuristic Seeking pleasure, avoiding pain</p> <p>Anchoring Attach illogical significance to available data, first impressions last</p> <p>Group effects, e.g. groupthink We all think this way</p>	<p>Prospect theory A bird in the hand is worth two in the bush, double or quits</p> <p>Repetition bias Undue importance is given to repeated data – it must be true!</p> <p>Illusion of control Exaggerate personal influence, discount luck</p> <p>Illusion of knowledge Some knowledge or relevant experience masks what isn't known, particularly if the person feels they 'should' know</p> <p>Intelligence trap Ability to mentally construct and verbally reason (IQ) means that the conclusions must be correct</p> <p>Optimism bias Delusional optimism driven by cognitive biases and/or perceived organizational pressures and norms</p> <p>Fatalism bias Ignore probabilities, focus on impact of outcomes – always optimistically, that is, the best case will happen</p> <p>Precautionary principle Ignore probabilities, focus on impact of outcomes – always pessimistically, that is, the worst case will happen</p> <p>Hindsight bias Fail to learn – 'I knew it all along'</p>	<p>Fear (dread, worry, concern...) Of the consequences of something happening</p> <p>Desire (excitement, wonder...) Of the consequences of something happening</p> <p>Love (lust, adoration, attraction...) I want it/want more of it</p> <p>Hate (dislike, disgust...) I don't want it/want less of it</p> <p>Joy (happy, carefree...) Life is good, more good things are possible</p> <p>Sadness (depressed, morbid...) Life is bad, more bad things are probable</p>

Table 1.2 Summary of potential influences on perception of risk and risk attitude

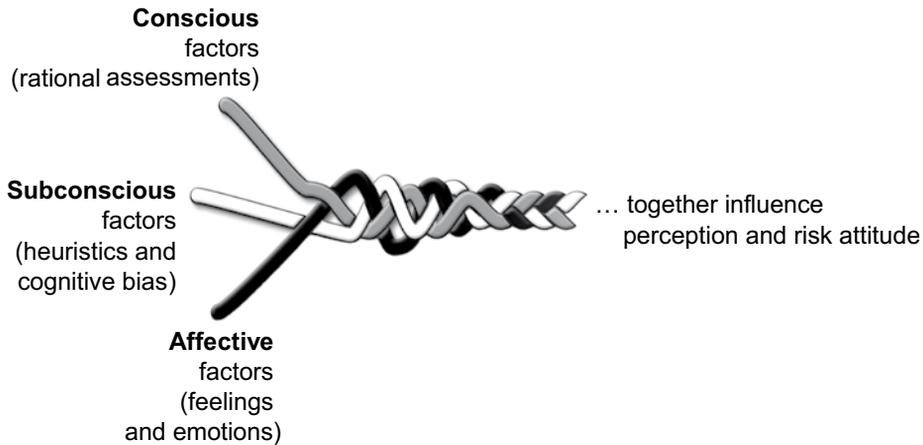


Figure 1.3 The triple strand of influences on perception and risk attitude

Conscious: These factors are based on the visible and measurable characteristics of the situation within which the decision is being made. (Typical conscious factors are listed in Table 1.2.) Such factors are known to bias perceptions of risk for individuals and within groups. They operate in a systematic way, allowing corrections to be made where their influences are exposed. Situational assessments are the most rational part of the triple strand of influences as they tend to be explicit and based on conscious thought.

Subconscious: These factors include mental short-cuts made to facilitate decision-making (heuristics) and other sources of cognitive bias. Heuristics operate at both individual and group levels, and provide mechanisms for making sense of complex or uncertain situations. Based on previous experience, many of these heuristics are useful because they allow rapid filtering of data to determine the most important elements, easing the decision-making task. Unfortunately the fact that heuristics operate subconsciously means that their influence is often hidden, and they can introduce significant bias into decisions. Whereas heuristics can have a positive influence, cognitive biases do not. The effect is to skew perception and decision-making in a way that is not real nor beneficial. Table 1.2 contains common heuristics and sources of cognitive bias that affect both individuals and groups.

Affective: These visceral gut-level responses are based on instinctive emotion or deep underlying feelings rather than rational assessments. All human beings store emotion-charged memories in the limbic system within the brain, and

these emotions are automatically triggered in situations perceived to be similar to the stored memory. A wide range of emotions or affective states could influence decision-making (as listed in Table 1.2), although some researchers suggest that the primary influence for any human being is to seek pleasure or to avoid pain.

The triple strand. The three sets of influences which form the triple strand are each important in the context of decision-making, as they each influence perception. Perception drives risk attitude, which in turn affects the quality of decisions made under conditions of uncertainty. It is possible to adopt a reductionist approach when considering these factors, examining the influence of each one in turn. However, the triple strand model has a more important message. The strands do not exist or operate in isolation, but are interwoven to form a complex set of influences. An individual in a decision-making group may have made an apparently rational assessment of the situation and decided on a particular approach, but this assessment will have been shaped by the operation of subconscious heuristics, and coloured by the person's underlying emotions. For example, a person has an opportunity to perform a parachute jump for charity. The person in question thinks that taking part would normally be too risky for them, explaining their decision in terms of a conscious rational assessment of the mathematical probability of injury. They also remember a recent news story where an experienced skydiver died due to a faulty parachute, and this makes them more risk averse, due to the subconscious operation of the availability heuristic. The very thought of jumping out of an aeroplane is enough to make the person's palms sweaty, a sure physiological sign to back up the feeling of dread in their stomach. It's for a good cause (but money could be donated anyway without doing the jump so that could be avoided). The real driving emotion for the person, however, is to avoid being embarrassed (in front of instructors and friends) if they were to 'chicken out' from a jump at the last moment. This adds further emotional weight to the conscious and subconscious perception of the risk. This perception drives their risk attitude (risk averse to the parachute jump) and their ultimate choice not to do it. This assessment is complex enough at an individual level, but would have been more so had there been the influence of a social or work group.

Risk in groups

All of the factors within the triple strand affect the perceptions, risk attitudes and decision-making abilities of both individuals and groups. However, the situation is considerably more complex than simply combining the individual influences to determine their overall effect on the group.

First, individuals are members of multiple groups, as illustrated in Figure 1.4. Every person belongs to a family, though the strength and influence of the family relationship may vary widely. Many individuals have jobs which involve membership of an organization as well as smaller work groups. Most people belong to a local community which in turn exists within a wider national context. Some individuals with the opportunity to travel may even consider themselves to be world citizens.

Each of these levels of membership influences the individual to a greater or lesser extent, and the various groupings also interact. Risk also exists at every level, with interactions between different types of risk.

When applied in the decision-making context, the multiple influences at various group and individual levels present a complex web whose precise effect is hard to determine. It is difficult to rate the relative importance of individual conscious assessments, subconscious heuristics or affective emotions, compared to group dynamics, or societal, organizational and national norms and expectations. These bring a range of influences to bear on individuals, potentially changing their perspectives and risk attitude in a given situation.

It is clear therefore that any complete and meaningful consideration of decision-making in risky situations must address both individuals and groups, and evaluate the effect of this wide range of influences on risk attitudes.

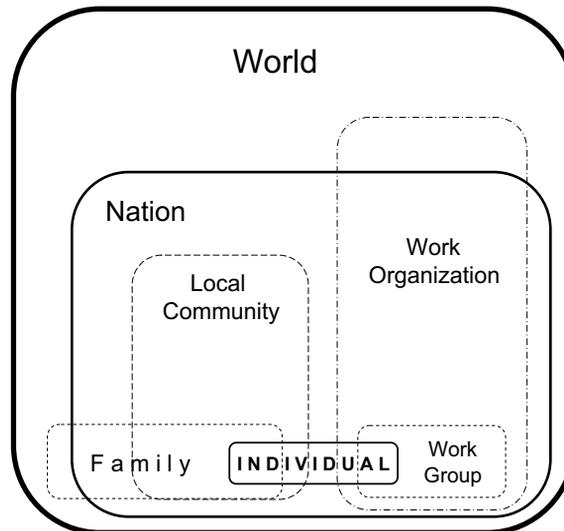


Figure 1.4 Hierarchies of membership and influence (not to scale)

(from Hillson and Murray-Webster. 2007)

Why does understanding risk attitude matter?

No-one would get out of bed in the morning if they had to consciously make a decision about every action to take, so people develop habits and routines that allow their lives to 'free-flow' unless there is an unusual situation to be addressed. The 'free-flow' of individuals and groups is influenced by past experiences and expectations for the future. The perception of uncertainty and the resulting response to out of the ordinary situations is biased by a complex triple strand of intertwined factors including conscious rational assessments, subconscious heuristics and cognitive biases, and gut-level emotions. Each of these three affects both individuals and groups in different ways. The situation is further complicated by various organizational, national or societal influences which impose norms and expectations on individuals and groups.

When decisions have to be made under conditions of uncertainty, each of these influences is important, because they drive the perception of risk. Risk attitude is the chosen response of an individual or group to uncertainty that matters, driven by perception. As a result, the ability to understand risk attitude offers a key to unlock the mysteries of effective decision-making where risk is involved. Understanding risk attitude is a critical success factor which promotes effective decision-making in risky situations, as shown in Figure 1.5.

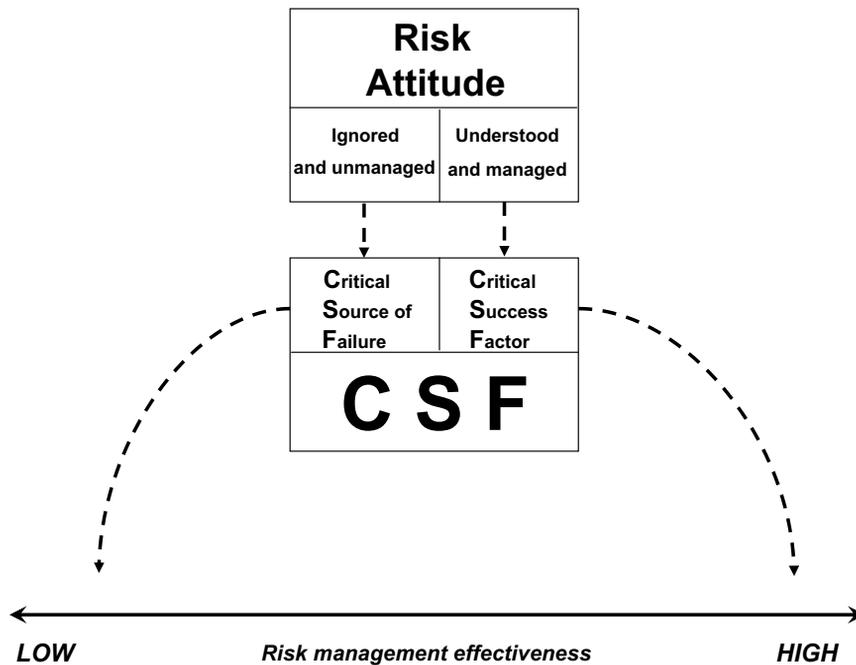


Figure 1.5 Risk attitude as a CSF for effective risk management

However, the absence of this understanding is not neutral, but presents a critical source of failure, leading to reduced effectiveness.

Our previous work (Hillson and Murray-Webster, 2007) presents a thorough analysis of risk attitudes at both individual and group levels. This is recommended for those with a deeper interest in the subject or who need to explore the background concepts in more detail.

Understanding risk attitude is a critical point of departure for effective decision-making, but it is not sufficient; two other parts of the jigsaw need to be put in place. In Chapter 2 we explore the first of these missing pieces, namely to define the notion of a 'good' decision. We summarize the literature on the subject to make the link between risk attitude and decision-making robust.

Second, in order to make a 'good' decision, sometimes risk attitude needs to be intentionally managed to override habitual/normalized patterns of behaviour or to change perspectives that have been biased by erroneous conscious or subconscious influences. Chapter 3 outlines our starting premises about managing risk attitude, particularly to summarize our existing work on individuals and groups, but the story is not complete. The summary in Chapter 3 leads into Part II, where we outline our work to complete the story about understanding and managing risk attitudes for both individuals *and* for groups in pursuit of appropriate risk-taking and optimal decision-making.

