Introduction

Brazil, 1956. Government authorities are concerned about the fact that the country's domestic bees population, necessary to pollinate various types of food crops (melons, almonds, etc.) does not effectively perform the expected task because these bees do not cope well with the tropical climate. Moreover, they do not produce much honey.

The geneticist Warwick Kerr is appointed by the government to find a way of increasing the bees' efficiency, including by crossbreeding them with other species of bees. Kerr travels to Africa and returns with seventy-five queen bees of an African variety (the highly aggressive *Apis mellifera scutellata*) together with their colonies. These bees are placed in special hives in a laboratory in Rio Claro, in the state of São Paulo, and are kept under strict surveillance. For a year, Kerr attempts to obtain a hybrid that is both docile to keep and active in pollinating, but he does not succeed.

One day a careless beekeeper erroneously removes the queen excluders and lets twenty-six queen bees escape, together with their swarms. Subsequently, these African queen bees crossbreed with the local European bees, resulting in a hybrid that differs greatly from the government's requirements: the new breed is certainly highly productive – in fact, it adapts well to the tropical climate – but it is extremely aggressive and dangerous both for humans and animals. In a short time, the inhabitants and the beekeepers in the Rio Claro area notice a significant change in the behavior of bees. Attacks on human beings become more frequent and increasingly disruptive, while a number of dogs are actually killed by the bees. From the point of view of their venom, African bees are no more dangerous than European bees, but these new Africanized hybrids are much more inclined to attack humans. The bees that migrated from Asia to Europe encountered a temperate climate and a favorable environment that made them docile and peaceful and, for this reason, easily domesticated. In contrast, the marked aggressiveness of African bees derives from the fact that in

migrating from Asia to Africa, the bees encountered very hostile conditions. As a result, they became nomadic to be able to keep pace with the flowering of plants. They also came to be very wary of humans because they were in the habit of plundering their honey. Only the most aggressive bees managed to survive, with the result that with the passing of the generations, they became even more aggressive.

By 1986, many years after the breakout from Kerr's laboratory in Rio Claro, the aggressive Africanized bees had crossed Central America and arrived in Mexico. The United States has invested millions of dollars to try to find a solution to the problem and to prevent the bees from entering their territory, but their efforts have been in vain: the bees have overcome the biological barriers that were created and are now advancing at a rate of about 500 kilometers a year. After eighty generations, there are now billions of these aggressive bees, and they have killed livestock and people. Today, they are present in many states in the United States, where they have supplanted the existing bees species. Moreover, it is believed that, with the intense traffic of cargo and container ships in the Atlantic, they will arrive sooner or later in Europe as well. On the positive side, however, these bees, as well as being very active in the pollination process, produce a great deal of honey. Indeed, Brazil, after adopting special protective measures and locating the beekeeping industry a long way from inhabited areas, has become one of the largest honey producers in the world.

Could an event of this kind have been foreseen? Was the initiative of Kerr and the Brazilian government a myopic action, in the sense that the medium- to long-term consequences of the importation of African bees were not foreseen? Yes, it probably was.

Could the terrorist attacks on the Twin Towers have been avoided? What about the *Challenger* and *Columbia* accidents, the two US space shuttles that exploded in flight? Behind these apparently very different events, it is possible to identify a common element: *organizational myopia*. It is a syndrome that severely limits the capacity of organizations to foresee the effects of their own decisions and to detect signs of danger. Ultimately, it can lead to failures and even disasters.

The theme

In recent years, the topic of organizational myopia has become increasingly important in management practices and in the field of

organization studies. It is crucially related to the problem of how organizations can foresee the future in contexts that are more and more complex, uncertain, ambiguous, and changeable.

The term *myopia* refers to a defect in sight that results in a blurred vision of objects located at a distance from the eyes. What is involved is a dysfunction in refraction in which the image of distant objects is formed in front of the retina, thereby rendering them indistinct, whereas the vision of the same objects at a short distance remains clear. In an extended sense, myopia means a lack of clear-sightedness and foresightedness, a restricted view of things. A myopic person, then, is someone who is shortsighted, lacking in perspicacity and long-term vision (the term derives from the Greek word μυωπία, muōpia, from myein "to shut" and ops "eye").

By organizational myopia, we mean a limited capacity on the part of an organization to evaluate the facts as they actually are and in terms of their possible evolution. Organizational myopia manifests itself in particular in the form of two distinct mechanisms relating to the incapacity of an organization or interorganizational system:

1. to detect signs of potential danger, which can undermine its survival or compromise its normal operation; and
2. to detect potential opportunities, which can improve reliability and resilience of the organizational system, favoring its long-term survival and adaptation to environmental changes.

Myopia in complex high-risk organizational systems lies at the basis of many disasters. The main consequence of organizational myopia is the persistence in an organization of beliefs and practices that lead to decisions whose effects result in a higher probability that a negative event will take place. The concept of organizational myopia has analogies with Turner's (1976; Turner and Pidgeon 1997) concept of "failure of foresight" and Wilensky's (1967) concept of "large-scale failures of intelligence" in that it draws attention to failure and/or incapacity on the part of organizations to foresee the future. By organizational intelligence, we mean the search for reliable and complete information and the capacity on the part of an organization to make sense of it. For example, in the aftermath of a disaster, public inquiries often focus on certain causal factors that, though never having been taken into consideration beforehand, seem, after the event, very clear, self-evident, and capable of explaining it. So inevitably the question arises: Why

wasn't anything done before? On the one hand, it is necessary to keep in mind certain cognitive mechanisms (e.g., hindsight bias) that, *after* the event, make what was *previously* complex look as though it were simple and straightforward. On the other hand, it is necessary to explain – based on the hypothesis that no one wanted to deliberately cause the disaster – the reason for the previous inaction.

The phenomenon of organizational myopia is potentially interesting for anyone involved with organizations. Its range of action goes far beyond high-risk organizations, to include a range of social, economic, and political phenomena, such as long-term consequences of political decision making, climate change and global warming, technological and financial innovations, and so on. Finally, myopia in regard to ill-defined and unclear threats strikes companies of all types. The top managers of the pharmaceutical company Merck, for example, underestimated the reputational consequences for the company of certain preliminary and scarcely reliable data on the painkiller Vioxx, that is, to the effect that it was associated with cardiovascular risk. Similarly, the managers of Kodak ignored the initial faint signs of decline in the use of film, while the bicycle manufacturer Schwinn underestimated the threat posed by the mountain bike, which in the course of time would turn out to cast a shadow over the traditional bicycle. Indeed, companies like Digital, Xerox, Delta, Kmart, and General Motors have all unexpectedly seen radical changes in their fortunes since the time in 1982 when Peters and Waterman, in *In Search of Excellence*, classed them as *excellent*.

"There's nothing as blinding as success," said Robert Haas, chairman of Levi Strauss & Company (*New York Times*, June 25, 2000), referring to the perverse effects of *organizational hubris*. By organizational hubris, we mean that mix of confidence and excessive pride that derives from past successes, the uncritical acceptance of praise and the idea that one is in some way exempt from the rules. A form of arrogance, this attitude is often a prelude to organizational decline, accidents, and disasters. Underestimating competition – considering past successes and consolidated positions a guarantee of success in the future – lay at the heart of the inertia of Levi Strauss in the face of the emergence of new rivals. This was also the case with other big companies such as IBM, Digital, General Motors, and many others (Sheth 2007). As far back as 1960, Theodore Levitt, in an article for the *Harvard Business Review* titled "Marketing Myopia," pointed out

how every industrial sector goes through a period of rapid expansion, after which there comes into play a vicious circle. The operators, after a certain period of success, become convinced that there are no threats or alternatives to their product and that their continued expansion is guaranteed. Lulled into this state of false security, they concentrate on exploiting the benefits of mass production and economies of scale through high production volumes and low costs. Over the medium to long term, however, the pursuit of these objectives has the combined effect of blocking innovation, which in turn produces stagnation and decline.

The book

This book provides an account of the various mechanisms that underlie organizational myopia, considering a variety of cases from different contexts. Its aim is to make sense of this phenomenon both with respect to micro-level behavior and to macro patterns occurring at the organizational and interorganizational level. Broadly speaking, this book constitutes an enquiry into the theme of the *dark side* of organizations and the *unintended consequences* (Merton 1936) of organizational behavior.

We argue that organizations that develop a systematic capacity to identify, evaluate, and react to ill-defined threats manage to avoid the emergence of serious problems much better than those that fail to develop such a capacity. Many risks bring with them "recovery windows" (Roberto 2009), a period between the appearance of the first signs of danger and the occurrence of the adverse event itself, a space during which one or more members of the organization have an opportunity to take cognizance of the signs and eliminate or contain the threat. Not to read such signs is a sign of myopia.

The book is divided into five chapters. The first one, "Cases of Myopia," presents three instances of myopia that occurred in different contexts. I start with the myopia of a society, investigating the case of *Easter Island* and the disappearance of the Moai civilization due to the inhabitants' incapacity to anticipate the consequences of their aggressive deforestation. I then study the myopia of a country, analyzing the *9/11 terrorist attacks* and the behavior of the US defense system, both with respect to the failure of intelligence in foreseeing the attacks, and with respect to its capacity in dealing with it and containing its

effects. Lastly, we discuss the myopia of an organization, studying the *Challenger* and *Columbia space shuttle disasters* and NASA's difficulty in identifying and learning from weak signs of danger. This chapter also contains a number of other cases including war battles, the problem of the tragedy of the commons, and a few instances of positive myopia, such as the case of a paper mill in Karnaphuli in East Pakistan.

In the second chapter, "Uncertainty and Predictability in Organizations," we discuss various difficulties that organizations may encounter in foreseeing nonroutine or unexpected events and, more generally, problems of uncertainty in complex environments. Expectations in this context play a double role: on the one hand, they reduce complexity; on the other hand, they may be biased and lead to erroneous conclusions. The chapter introduces two alternative theoretical approaches to the predictability of unexpected events: the *predictable surprises* approach, according to which some events are unexpected but essentially predictable, and the *bolt from the blue* (or *black swan*) approach, according to which such events are unpredictable or at the most predictable only by virtue of hindsight bias, that is, predictable only ex post. In the first framework, if the occurrence of unexpected events is not predicted, this is due to executive failure. In the second framework, most events are very difficult to identify, imagine, and obviate because of a set of variegated, interacting, cognitive, organizational, and political factors. These two models are put to a test in the case of the financial crisis of 2007, and a third, midway model is introduced, that of a *gray swan*, which identifies a category of events that are predictable within limits.

The third chapter, "The Mechanisms of Organizational Myopia," outlines an analytical model of organizational myopia distinguishing among three levels at which myopia can occur: the individual, the organizational, and the interorganizational. The *micro*-individual level refers to biases, heuristics, and other cognitive errors that may affect decision-making processes. At the *meso*-organizational level, myopia is favored by the inadequacy of the way in which organizations analyze threats, integrate information, create incentives for action, and learn from experiences. Finally, the *macro*-interorganizational level refers to the environment in which organizations operate and encompasses many organizations and institutions, such as the government, regulators, corporations, interest groups and lobbies, and so on. The model is then applied to understand the mechanisms that contributed

to auditing companies' failure of control in Enron, Parmalat, and other similar cases, which constitute an interesting and understudied case of gatekeepers' failure.

The fourth chapter, "Anticipating Risk: The Problem of Learning," explores how organizations learn from errors and failures, especially from unusual and rare events. Anticipating risk and reducing accidents is not an impossible mission, in particular if there is an incubation period that allows the organization to detect weak signs, to prevent critical events, and to contain their consequences. The chapter contrasts two different approaches to the understanding of the origins of organizational accidents. The *individual blame logic* approach aims at finding the guilty individuals, and its logic of inquiry is driven by the question of who caused the accident. In contrast, the *organizational function logic* approach focuses mainly on organizational factors and asks, What factors favored the accident? How and why did the defense system fail? In this chapter, I maintain that organizational learning is favored by an organizational function logic in which the reporting of failures is incentivized and people are not punished for unintentional errors.

The fifth chapter, "Implications for Organizational Design," highlights the importance of detecting and making sense of weak signs and of cultivating imagination in organizations as fundamental ingredients for expanding organizational intelligence. Here we present the characteristics of High Reliability Organizations (HROs), a type of mindful organization that, in combating organizational myopia, is better able to confront unexpected events.

Finally, in the Epilogue, relying on the analytical categories discussed in the previous chapters, I introduce a classification of different forms of organizational myopia based on the predictability of the event and the possibility of dealing with it either ex ante, ex post, or both (manageability). We identify four types of organizational myopia:

1. *Systemic myopia* occurs when the events are *potentially predictable* and *manageable both ex ante and ex post*. Events are potentially predictable if there is a *direct* and *clear* causal link between signs and event and if before it takes place, there is an *incubation period* in which signs make possible its detection. If events are potentially predictable and manageable by the organization both ex ante and ex post, the organization is victim of systemic myopia

if it fails (a) to detect signs before the event (failure of anticipation) or (b) to contain its consequences, despite the presence of a recovery window (failure of containment). Myopia here is a systemic condition of an organization, as in the case of man-made disasters and organizational accidents, such as the British Petroleum oil spill, the *Columbia* shuttle disaster, and the Enron financial misconduct.

2. *Foresight myopia* occurs, instead, when events are *potentially predictable*, but were manageable only ex ante, as in the case of the *Challenger*'s O-rings, or only ex post, as, for example, in the Chernobyl accident.
3. *Unavoidable myopia* concerns events that are *hardly predictable* because *no preceding signs exist* whatsoever, or there is an *indirect* and *unclear* causal link between signs and event, or the event has never occurred before and there is no model to refer to. The organization could act only ex ante or only ex post and was not able to do so. It is the most justifiable of the four forms of myopia, because there was no opportunity for the organization to implement mindful either preventive action or suitable methods of containment. A classic example of unavoidable myopia is the Three Mile Island nuclear plant accident.
4. Finally, *preventive and reactive myopia* occurs when events are *hardly predictable*, but the event was manageable both ex ante and ex post. The organization could have implemented anticipatory preventive measures (for example, forest maintenance, preemptive fires, antiseismic construction, etc.) but did not do so (failure of anticipation). In addition, the organization was also unable to contain the consequences of the event (failure of containment). The 9/11 terrorist attacks fall into this category.

If it is true that an organization cannot avoid accidents and unexpected events, it is also true that an organization can contain the consequences and the frequency with which they occur. This book pursues two objectives. First, starting out from the analysis of a number of cases (Chapter 1), the book contributes to the construction of an organizational theory of myopia, identifying the various mechanisms that generate it (Chapters 2 and 3) and make it difficult to learn from failures (Chapter 4). The aim here is to explore the barriers that at various levels impede and prevent organizations from identifying an

effective response to the problems that they have to confront. Second, the book considers the implications of organizational myopia for organizational design, discussing some possible lines of action aimed at limiting its scope and increasing the capacity of organizations to anticipate and contain unexpected events (Chapter 5).

1 *Cases of myopia*

1.1 Myopia of a society: the trees of Easter Island

Easter Island (called Rapa Nui, meaning "great island/rock" in the language of the natives) is located in the South Pacific and is triangular in shape. One of the world's most remote and isolated islands, it covers an area of 171 square kilometers and reaches a maximum height of 509 meters. It lies approximately 3,600 kilometers west of the coast of Chile, and its closest inhabited neighbors are Polynesia's Pitcairn Islands, 2,075 kilometers to the west. In administrative terms, it is a separate province of the Chilean region of Valparaíso. It was first colonized by the Polynesians at a time when it was covered by an immense forest of palm trees.[1]

Until about the thirteenth century, the population remained small in number and substantially in equilibrium with the natural resources of the island. Europeans discovered its existence thanks to the Dutch explorer Jacob Roggeveen on April 5, 1772, Easter Day. The island was christened with the name that it has kept to this day. The territory had presumably been inhabited since around the tenth century, but even now, it is a mystery how the Polynesian inhabitants of Pitcairn Islands were able to accomplish a journey of at least two weeks in small canoes, carrying with them seeds, chickens, and drinking water.

Nowadays, the island is a flat, vegetationless expanse, but this was not always the case. In the past, it was covered with a variety of plants and trees, including especially a type of giant palm tree that grew in many parts of the territory, but of which there is no trace today. Instead, there are giant stone statues (known as *moai*) and around three hundred stone platforms (known as *ahu*) on which they stood. Both the *ahu* and the *moai* face inward, to the island's interior, probably toward the clan that was responsible for erecting them. The *ahu* is

[1] For more details on the Easter Island case see *Twilight at Easter*, in Jared Diamond's *Collapse: How Societies Choose to Fail or Succeed* (2005).