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COPING WITH NON-CONVENTIONAL CRISES FROM TRADITIONAL CRISIS MANAGEMENT TO STRATEGIC LEADERSHIP IN A CHAOTIC WORLD: SOME GUIDEPOSTS

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1 The authors of this report are Patrick Lagadec, Director of Research, École Polytechnique, Paris, Member of the Académie des Technologies de France (contact : www.patricklagadec.net) and Xavier Guilhou, XAG Conseil, Paris, Conseiller du Commerce Extérieur de la France (contact : www.xavierguilhou.com).

« Gunfire kills – but so do outdated ideas»
General Foch

« In 1914, we were caught totally unprepared
In 1940, we were fully prepared – for the First World War »
A member of the Cabinet Office, London.

« There is a tendency in our planning
to confuse the unfamiliar with the improbable.
The contingency we have not considered seriously looks strange;
what looks strange is thought improbable;
what is improbable need not be considered seriously »
Thomas Shelling,
Foreword, in Roberta Wohlstetter
Pearl Harbor – Warning and Decision
Stanford University Press, 1962 (p. vii).

« We believe that the 9/11 attacks revealed four kinds of failure:
in imagination, policy, capabilities, and management ».
9/11 National Commission Report, 2004

« If 9/11 was a failure of imagination, Katrina was a failure of initiative.
A failure of leadership ».
Final Report of the Select Bipartisan Committee
to Investigate the Preparation for and Response to Hurricane Katrina
House of Representatives, February 15, 2006.

"If reality is inconceivable,
then we have to invent inconceivable paradigms".
Hegel

« The important issue remains political acceptance of responsibility
for meeting the risk challenges ».
Donald Johnston
IRGC Conference, Beijing, Sept. 2005

FOREWORD 1

In order to constitute a more complete basis of information and expertise on non-conventional risks and extreme crises, the OECD commissioned two complementary reports from:

- Howard Kunreuther and Erwann Michel-Kerjan, Risk Management and Decision Processes Center, The Wharton School, University of Pennsylvania (USA) – specialists in management and financing of large-scale risks;
- Patrick Lagadec (Ecole Polytechnique, Paris) and Xavier Guilhou (XAG Conseil) – specialists in risk prevention and the management of emerging crises

This paper was produced by the second team, and thus constitutes only one of the two aspects of the work.

Its intent is to clarify the general terrain on which the major crisis issues of today need to be considered and managed, to identify some strategic points of reference, and to suggest the dynamics that must be engaged to consolidate the capacities of our decision-making systems. It does not focus on the issues, policies, strategies, organizations and technical tools proper to the world of finance and insurance, the field covered by the first team. The two reports should naturally be considered as a complementary set.

FOREWORD 2

The remit suggested to us for this second report was necessarily very open-ended. We were asked to clarify the question of crisis management today, covering both its familiar, consensual, and validated areas and those areas of knowledge and know-how that are much more uncertain. The reader, then, is necessarily confronted with a document that combines highly contrasting realities: areas that are already well known to experts (but with which people on the front lines are all too often unfamiliar) and areas that have yet to be given any clear shape (for the literature on crises usually lags well behind events).

We are well aware of the dual difficulty we are imposing here on our readers. They will have to venture into fields where the contours and the points of reference are still hazy and under discussion. They will also encounter a form of writing that is much less conventional than that normally found in reports. Moreover, when it comes to emergencies and crises, the established approach tends to focus on plans, fact sheets, and checklists, in order to classify and format realities often marked by confusion. But if, as here, we are to deal with crises on shifting and, in the end, chaotic terrain, we cannot rely on – indeed, we must eschew – such traditional fact sheets and simplified schemas.

It is only by making this sacrifice, and not by contenting ourselves with developing ever more orderly classifications for pigeonholing risks, that we can begin to come to terms with the crises of our time. That was indeed the strong message from Donald Johnston, Secretary-General of the OECD, in an address on these issues given in Beijing in September 2005: *The important issue remains political acceptance of responsibility for meeting the risk challenges.*

INTRODUCTION: ISSUES AND PERSPECTIVES

DISCONTINUITIES

Whenever the issue of new risks and emerging crises arises, the spectre of September 11 casts its shadow. But 9/11 is not the only issue. For instance, Katrina has altered the agenda of influential circles in Washington, which are now calling for an "all-hazards approach" less focused on the single problem of terrorism. More generally, we find ourselves today in a transitional period, marked by global discontinuities with respect to security and vulnerability on all fronts - environment, climate, demographics, public health, technology, social dynamics, economic tensions, geostrategy, violence. Whatever the field, we now see the curtain fall on an era whose mantra was "everything is under control" - the misleading guiding principle that dominated the approach to risk and crisis throughout the years 1980 to 2001. In other words, we have witnessed "the end of zero risk" (Guilhou-Lagadec, 2002), and we now need a new vision and new practices.

Two major, mutually reinforcing challenges compel us to rethink our guiding paradigms in depth. For one thing, events can now take on dimensions that are completely "off the charts" and out of proportion with what we used to consider reasonable to envision. On the other hand, our environments and our bases of reference are increasingly shaky and unstable and prey to violent de-structuring and restructuring. In other words, the universe of risks and crises is undergoing profound change. And our countries and our leaders are now called upon to adapt to these new battle lines.

We must tackle these questions head on, overwhelming and dovetailed as they are, and even if they may seem to us "unthinkable" (Lagadec, 2005). We must do so, not just to protect ourselves, but to more ambitiously imagine and pursue collective projects in this turbulent world, which combines the unfathomable and the threat of sudden collapse, but which also provides opportunities for rebounds that are equally "inconceivable". Rebound indeed, for what is at stake is not merely tragedy and impasse. We may think here of the Chinese character that famously stands for the concept: "danger" and "opportunity". Those who strive to take the future in hand also forge precious tools for opening promising new paths. Provided, of course, they are ready to seize openings and opportunities offered by the sudden and the unexpected. Those opportunities present themselves only to those who are prepared.

Yet it is true that the underlying perception of the discontinuities that assail us from all sides tends to be one of loss and mourning. This is understandable, for historic breakdowns can indeed be overwhelming. The historian Barbara Tuchman (1962) put it beautifully when she described the funeral of Edward VII in 1910 against a backdrop of the demise of an entire world order:

> *"The muffled tongue of Big Ben tolled nine by the clock as the cortege left the palace, but on history's clock it was sunset, and the sun of the old world was setting in a dying blaze of splendour never to be seen again ». (p. 1) « Lord Esher wrote in his diary after the funeral: "There never was such a break-up. All the old buoys which have marked the channel of our lives seem to have been swept away"(p. 14)*

In fact, our current world and our perceptions of it are strikingly similar, when we consider the assaults that are steadily chipping away the foundations of our old world of the 20th century. We are at a point of historic discontinuity, which calls for much more than mere tinkering with and tightening up of security around the edges. The dominant impression is that of a world which is escaping all known frameworks, a world we can no longer manage, and for which our plans dissolve into nothingness, the frenzy of real-time, media zapping and political disarray. It is not, as some might have believed these last

years, simply a question of equipping ourselves with a crisis management toolkit and checklist and thereby getting through the occasional incident or rough patch.

Of course, we are not starting from scratch. When it comes to technological security, in particular, we have not been sitting idly by these last 30 years. After Seveso (1976), Three Mile Island (1979), and Bhopal (1984), risks were recognized to be "major" (Lagadec, 1981a, 1981b), in the sense that they escaped the confines of industrial compounds, scientific categorizations, and frameworks of governance. The crises that made their way onto the agenda demanded new paradigms and new practices; indeed much was done during the 1980s to adapt our responses to the risks and the crises that came at the end of the "Thirty Glorious Years", 1945-1974 (for example the post-Seveso legislation in Europe in the domain of technological risks). Yet whether we speak of natural risks, technological risks or the threat of terrorism (the distinction is in any case increasingly difficult to draw), we are facing realities today that are more complex and more pressing than the accidents of the late 20th century.

Similarly, there has been very significant progress in the field of insurance and reinsurance, and specific mechanisms have been set up to cover major natural risks, industrial catastrophes, and terrorist threats, with a more recent extension onto the financial markets[2]. But we must not forget the warning long issued by Munich Re, which is still highly pertinent today (1980):

> *"Foresight and preventive measures against damages are only too often overtaken and exceeded by evermore considerable hazards (...). Insurance was instituted as the result of human reasoning. To a large extent, it allows us to repair the material consequences of human failures. But it faces logical limitations as soon as mankind no longer has the capacity to deal with the problems of its existence in a reasonable way."*

In these fields, progress is undeniable, although it still needs to take root. Yet this is not enough. A new and quantum leap - intellectual, operational, and in terms of governance - is needed on all fronts, and on an even wider scale. The risks and crises of 2006 are no longer those of the 1980s. After the World Trade Center, the Tsunami, Katrina, and the spectre of a flu pandemic that is said potentially to threaten the world economy (Cooper, 2005), it is now our turn to experience the feeling - unspoken, tenacious and widely shared - that our own "buoys" are terribly inadequate. We must recognize that the gap between the world of risk in the 1980s - when we started to forge the benchmarks in effect today - and the current risk landscape is just as wide as between the end of the Great War of 1914 and World War II.

This paper attempts to describe and assess this chaotic world of ours. Those who prepare for the "wrong" war, and resort to erroneous visions or strategies, will encounter nothing but disillusionment and fiasco, however excellent the tactics, organization, models, tools, and mathematical calculations that have served us to date as responses and strategic horizons.

Responses

Yesterday's threats (factories that suffered localized accidents, ordinary or "class-3" hurricanes) have certainly not disappeared. Therefore, we still need to marshal our existing capacities for risk control (Nicolet, Carnino, Wanner, 1989) and crisis management (ten Berge, 1990; Lagadec, 1991; Fink, 1986; Heath, 1990) with which the professionals are thoroughly familiar. And we must be wary, for expertise can vanish in just a few years. Yet while cultivating this expertise, and beyond it, we must also look at the challenges and upheavals now emerging in the field of security, and more generally across the entire panorama of our development and our global (dis)equilibrium. The line that typically marked the furthest

[2] We will leave this to the companion study prepared by Howard Kunreuther and Erwan Michel-Kerjan.

horizon of previous studies and models of risk and crisis management needs to become our starting line, both for analysis and for action.

Since September 11, 2001, a great deal of thought has been given to the notion of major risks in complex societies (IRGC, 2005). The issue of protecting and insuring critical infrastructure against terrorism or major disasters has given rise to countless expert papers and international meetings. "Business continuity" is now the focus of many conferences and initiatives. The OECD has contributed greatly to this progress, as much through its studies and its expert meetings as through the forthright statements of its Secretary-General.

The immediate task is to understand these changes in the order of *problems* (Quarantelli, 1996; Dror, Lagadec, Porfiriev, Quarantelli, 2001), and to make the necessary changes in the order of *response* (Guilhou-Lagadec, 2002; Godard-Henry-Lagadec-Michel-Kerjan, 2002; OCDE, 2003; World Economic Forum, 2006). We need a clear awareness of the discontinuities we are witnessing. Even more, and going far beyond simple diagnostics, we need the determination, the indispensable creativity to explore, to test, to validate approaches to what must be a fundamentally reinvented concept of governance.

The subject is immensely broad, and we are well aware of the limits of the analysis that we can offer in this report. Our ambition will focus on suggesting a number of paths of questioning and of work on three key points:

The fundamental issues. What is this universe of non-conventional crises, what are the new foundations of our collective security? This is less a question of adding up categories of risks and crises than of identifying the basic lines of diagnosis for answering the crucial question posed by any analyst: "what is this about?" Beyond conventional threat typologies, we must now think in terms of the breakdowns and discontinuities, both imposing and complex, that deeply mark non-conventional risks and crises. Two phenomena are intrinsically linked in this regard: the propensity of emerging risks to generate chaos, and the "liquefaction" of our basic foundations.

Operational responses. To deal with today's emerging crises, we need to develop entirely new skills. Certainly, those acquired in the past decades are still valid footholds worthy of mention; but in addition, the new frontiers relating to security and vulnerability demand new responses. The goal is not to review all the literature, scientific or operational, which in any case is often more tactical than strategic, but rather to trace some "lifelines" that are essential for governments, international institutions or private operators grappling with the risks and crises of our time.

Strategic initiatives. As the OECD Secretary-General put it so forcefully in 2005, "The problem is less in defining what the challenges are - this is quite well known by people in the field - but rather translating our understanding of those challenges into political action. [...]. This requires a comprehensive and co-ordinated approach. A piecemeal response will not work." (Johnston, 2005, pp 3, 16). These remarks hit the nail on the head: we have been too much inclined in recent years to compile diagnostics, classifiers, and tactical checklists. Yet at times of great historical challenge, these basic elements are far from enough - and may even turn out to be part of the problem. The imperative is to put ourselves truly in position, in a determined frame of mind, to meet the current challenges in all their complexity. For a start, we must not allow ourselves to be overwhelmed by fear, for then we will merely stumble from one fiasco to the next, held hostage to outdated visions. But beyond that, if we are not to abandon governance to circumstances, we need to plan ahead so that we can pool our energies, lay down yardsticks, and unleash self-reinforcing dynamics. This requires determination: the way to counter discontinuities is through "creative ruptures" (Lagadec, 2000). This also requires new know-how. Already, some guideposts, or at least some points of departure can be suggested. But it is less a matter of new scripts and arsenals of

apparently sophisticated tools, than the mobilization of wills and the capacity to apply our intelligence in new ways, for dealing with ever more turbulent times (Lagadec, 2006b).

As the reader will now understand, this paper is less a summary of the findings and the tools already at hand, in the tradition of the years 1980-2000, than a strategic point of departure. In each of these three sections, we shall attempt to identify a few essential guideposts for policymakers who want to reassess their vision and action in the light of the challenges to be met.

Since we are in a time of transition, we will attempt to encompass at the same time the best of past achievements, and intuitions about the challenges now emerging. In other words, we shall try both to recall what we know about more "conventional" crises and how to manage them (knowledge and know-how that we must retain or urgently re-acquire), and to explore new forms of crises and new sets of responses to them.

CHAPTER 1

THE NEW WORLD OF RISKS AND CRISES

Summary

Diagnosis. The break between the end of the 20th century and the beginning of the 21st-century has been violent and disconcerting. Our world used to be relatively stable. Certainly, it could and did undergo serious breakdowns and crises: but those were charted, localized, manageable, and reparable within established frameworks. Now we are in the grip of events which lie beyond "normal" categorizations. We find ourselves thrown into a world that is losing its bearings, its balancing mechanisms and its internal borders. We are moving from the accidental - specific breakdowns within generally stable terrains - to the chaotic: a landscape that is profoundly and permanently de-structured, a matrix of security problems responding to laws that we do not understand. A world where crisis becomes the central operating mode, and which is generated by events, processes, and combinations that are increasingly off the scale. Two essential types of difficulties come together to produce today's crises:

- Shocks no longer fit their customary frames of reference: we are witnessing difficulties that in terms of scale, complexity, and speed "burst the seams" of our understanding and our vision.
- These shocks are arising against a backdrop of contexts and moorings that are also shifting with increasing speed, which only compounds our loss of bearings, management capacity, and the collapse of confidence.

Hence, there can be no "technical" solution, however sophisticated, to these emerging crises. We must first assess the issues and then invent appropriate responses.

In writing about crisis management, it is customary to establish categories of events, and then offer codified responses, usually case-specific. Today, decision-makers need a radically different approach. The main challenge is not so much the particular technical content of crises, but rather our capacity to understand the inherent - and largely uncharted difficulties - we have to face. Difficulties which arise on two fronts, and which are mutually reinforcing:

- ***Crisis dynamics increasingly tend to be "extreme" in all respects***: they are now characterized by highly destabilizing qualitative difficulties, which extend far beyond our intellectual, cultural and managerial codes of reference.
- ***Our bases of reference are collapsing***: this exposes us to a sudden and fundamental loss of bearings, and can provoke destructive domino effects, even in the case of local, limited or merely suspected disturbances.

This first chapter explores (without claiming to be exhaustive) a few essential points relating to these two trends.

Before proceeding with our analysis, a word of clarification is in order. Our scientific, managerial and governance culture has made all of us, regardless of our specific national traditions, the heirs to a well-established "crisis management" *domain*, one that, like a tidy French garden, was defined by its internal borders, composed of compartmentalized lots, and managed in accordance with established rules, all within a globally stabilized context, resting on a solid and robust foundation. This is the intellectual setting in which we developed our tools of risk analysis and crisis management.

Certainly we acknowledged that breakdowns could and did have severe consequences, as well as collateral fallout, but we still believed that emergent situations would remain measurable, stable, and charted. This allowed for an approach to risk that was quite in harmony with conventional scientific and

operating rules: measurement, reproduction, verification, and optimization. Consider what Peter Bernstein had to say in his cult book on risk, *Against the Gods*: "The best decisions are based on quantification and numbers determined by the patterns of the past" (Bernstein, 1998, p. 6). Or the definitive statement of Alvin Weinberg: "Science deals with regularities in our experience. Art deals with singularities" (Weinberg, 1985). It is this vision that underlies our approach to risk and crisis: any breakdown is merely singular, and crisis resolution simply aims to return to "normal" equilibrium. Hence, "business continuity", "risk assessment", and "crisis management" involve nothing more than applying recognized tactical expertise to awkward, but short-lived, events: proper checklists and good operational training ensure that things promptly return to normal. If necessary, some very powerful props can be called into play, in terms of logistics and financing, in which case-solid tactical know-how can often be relied upon to ensure efficiency in "damage control" or "recovery".

Yet, lo and behold, these fine foundations have now been undermined, torn apart, rendered unintelligible, or have even vanished. What is the "probability" of an off-the-scale terrorist attack? The probability of a viral mutation? How can the finest-looking crisis plan be put into effect in a country that has no government? How can insurance companies deal with a pandemic like that of 1918? Towards the end of his book, Bernstein admits that "discontinuities, irregularities and volatility seem to be proliferating rather than diminishing". (Bernstein, 1998, page 329). Foundations, frontiers, regularities no longer respond to our models. What appears now on our radar screens is incoherent, contradictory, and volatile.

Our cultures, our psychological foundations, our institutions and our tools were all designed to work in a stable, modelled, measurable universe; they were sensibly rooted in averages, in "reasonable" levels of severity. Our forecasting and catch-up capacities would deal with aberrant emergencies *at the margins* of the system. It is little surprising, then, that we struggle when confronted with situations that deprive us of our basic moorings, and push us to the brink of chaos - or even over the brink - where our most fundamental frames of reference become ineffective, or even irrelevant.

This shift from the conventional to the unconventional – i.e. the "unthinkable", as long as we remain locked into our old ways of thinking about management and governance – constitutes the essential challenge in the crises of our time. The problem is no longer to make allowance *on the margin* for extreme events (Pickford, 2001), but to *focus* our thinking well beyond the bounds of the conventional, for the obvious reason that those bounds have lost most of their former relevance anyway. This is the point on which what follows is premised. We'll begin by addressing some of the crucially (de)structuring factors on the two fronts indicated above: namely, the fact that emergent events are increasingly "barbarian" in nature (by which we mean that they do not "play by the rules") and that our foundations are crumbling.

1.1. Bursting our frames of reference

The last quarter-century has seen remarkable progress in risk control and crisis management. Much has changed since appalling deficiencies were brought to light by the first great catastrophes in the United Kingdom in the 1970s (Flixborough, a chemical factory obliterated in 1974), when withering criticism was levelled at the then-prevalent "telephone directory method" of risk control. This relied on classifications, overly case-specific, technical responses, which engendered a systematic propensity to act too late. France underwent the same evolution (as exemplified by the 1976 law on "dangerous" facilities), followed by the EC (the Seveso directive) in the early 1980s. This shift in turn gave rise to statistical, probabilistic, sociological approaches, "risk management", and the entire arsenal of crisis management - plans, tools, organizations, communication and so on. We developed systemic approaches, stressing managerial dynamics rather than specific features of individual components or processes. We adopted the notion of "in-depth defence", calling for consolidation along different lines of protection, the coordination of which would provide comprehensive security.

But we now must go beyond that. It is time for another shift in our approach, for the development of a new response "grammar". The need is already clear when it comes to questions such as public health, computer security, and power blackouts. The world of risk, the world of crises, have changed, and we must change with them.

By going beyond sector-specific analyses, we can identify the *generic* dimensions that determine these new crisis dynamics.

The scale of the phenomena. This is the most obvious factor - when a Katrina-style hurricane can devastate an area as big as Great Britain, when a storm like that of December 1999 in Europe can down as many trees as had all previous storms in the preceding two centuries combined, when a blackout can hit a whole continent... But we have to go well beyond this "obvious" dimension.

From the local to the global. In the 1980s, crisis management began to take into account the "neighbouring residents" of a factory or power plant in its calculations. But in today's crises, this "neighbouring zone" often expands exponentially to include the entire world - such was the lesson of Chernobyl (1986). In addition, the "Achilles' heels" of our systems are no longer specific, localized failures *per se*, but the fact that worldwide turbulences can tap into and magnify the potential of dormant, particular risks. This was the lesson of the December 1999 storms in Europe (which provoked the flash flooding of the nuclear power station at Blayais in France), and it is a threat inherent to all the great planetary "hurricanes", whether we are speaking of the climate, the environment, public health or terrorism. Every point of the planet can be hit by an imported crisis that originated far away, in space and in time.

The network. The intricacy of the vital infrastructure on which we are increasingly dependent at the national and international levels can act as a resonance chamber that will magnify a local breakdown to unprecedented proportions, or spark local problems for which the source and the solution are beyond local control. In the wake of September 11, the security of critical infrastructures (energy, water, transportation, information systems, banking systems, public health systems) came under close scrutiny, both in terms of protection (Auerswald, Brancomb, LaPorte, Michel-Kerjan, 2006) and insurance against a major disaster (Michel-Kerjan, 2003; Kunreuther-Michel-Kerjan, 2004). Indeed, a commission set up by President Clinton had already broached this issue in 1997-98:

> *"Our national defence, economic prosperity, and quality of life have long depended on the essential services that underpin our society. These critical infrastructures – energy, banking and finance, transportation, vital human service, and telecommunications – must be viewed in the Information Age. The rapid proliferation and integration of telecommunication and computer systems have connected infrastructures to one another in a complex network of interdependence. This interlinkage has created a new dimension of vulnerability, which, when combined with an emerging constellation of threats, poses unprecedented national risk." (President's Commission on Critical Infrastructure Protection, 1998)*

Speed. The SARS episode in 2003 showed the need to think of our vulnerabilities in the context of highly compressed time units. The combination of the virus and the jet airliner changed the rules: in just a few hours, the virus jumped from Hong Kong to Toronto via the United States (the geography dictated by airfares does not conform any longer to that of the planisphere): a single, symptom-free carrier was enough to shake the capital of Ontario (which lost 15,000 jobs). Similarly, on 14 August 2003, a huge power cut plunged the northeastern part of North America into darkness in a matter of 20 seconds. Today, an electronic glitch could shut down our information systems worldwide within a minute (Cukier, 2005). And of course the slightest hint of a spiral effect can instantly spark a worldwide media frenzy. When we

realize that it takes a good 10 days to get our systems up and running in case of a freak event (Katrina, heat wave, tsunami), this time discrepancy is a cause for concern.

Ignorance. We now often find ourselves moving from uncertainty, a dimension to which we are well accustomed, to ignorance. Not only do experts now find themselves at the very limits of the current state of knowledge, but their theories and plans are simply not working. An expert will in many cases have great trouble in comprehending the threat and offering a prognosis; his stock of prior observations, his laws of probability are no longer relevant. He may not even know whether there is a problem at all. He may suspect a phenomenon, but he can no longer exclude it. Similar uncertainties plunge decision-making systems into disarray. This became brutally clear during the Y2K transition, or with the "mad cow" affair (Phillips, 2001), where stakeholders were plunged into a maelstrom of contradictory information, between concerns that there might be "millions" of victims, official pronouncements that the disease was harmless, and the eventual, reassuring scientific assessments in hindsight, which allowed many to regain their bearings by simply shrugging off the whole episode as "panic over nothing". In August 2003, some officials thought it best to shrug their shoulders again over "a bit of summer heat", until, over a period of 10 days, the toll mounted to a staggering 15,000 deaths in France and 20,000 in Italy (Lagadec, 2005). This same lack of benchmarks can be seen with all the major issues, whether they relate to the climate, to nanotechnology, to genetic engineering, or to terrorism. The problem is no longer (as in our "positivist" recent past) to identify what we "still" don't know, or what lies at the limit of our knowledge - but more modestly; to try to discern what parcel of our available knowledge really is robust enough to resist the rash of questioning from all sides that modern crises elicit, and guide us through them when all else fails.

Off-the-scale complexity. Our modes of acting are configured according to "normal" benchmarks of complexity, i.e. a *typical* emergent event can be neatly classified within a relatively defined and stable context (observing the *ceteris paribus* rule). Now, these benchmarks have been abruptly exceeded, and what was a given is no longer. This was the case with the class-5 (and then class-4) hurricane that hit New Orleans on August 29, 2005. Here we had a sudden phenomenon that involved an off-the-scale hurricane twice the size of the biggest ever witnessed, persistent flooding, a series of industrial disasters, outmoded evacuation schemes, widespread lethal pollution, destruction of 90% of the essential utility networks (energy, communications, water etc.), unprecedented public safety concerns ("unprecedented" at least in the United States), concern over the possible loss of the port zone (essential to the continent's economy), uncertainty as to whether portions of the city could be saved – clearly speaking of a "hurricane" had become irrelevant and counter-factual to describe the set of challenges at hand. And this is becoming increasingly the norm: concepts, frameworks, scientific categorizations are exploding, and those who nevertheless cling to them are likely to be swept away.

The inconceivable. This is the most destabilizing element of all. America had expected missiles, but it was hit with box cutters. We thought global epidemics were a thing of the past, and, lo and behold, the spectre of a global pandemics has returned. Indeed, when we look back at the flu pandemic of 1918 (Barry, 2004), we even have to acknowledge that societies of that time were probably a good deal more resilient than ours, trapped as we are by the widespread devotion to "lean process" and "just-in-time" principles that can transform a minor breakdown into a disaster almost instantly. In the wake of Katrina some have asked: what if the second hurricane, Rita, had hit Houston? What would it mean today to lose a major urban centre, a "hub city"? Moreover, as soon as the inconceivable happens, the simple plausibility of threats can unleash a nasty spiral - a few cases of bird flu, and poultry sales drop 20% in just a few days across the continent, because of a sudden collective feeling that the old verities have been shattered.

A "class-5" media storm. As soon as an event is seen to exceed the norm and to suggest an imminent public disaster, the mass media will quickly swarm the scene, dominate coverage of the story, and thereby dictate collective representations of the emerging event. In so doing they tend to resort to "Hollywood-style" narrations, and desperately strive to sensationalize any given situation. Yesterday's question was

whether (and how) our crisis managers - the exclusive recipients of warnings, analyses, and recommendations from the experts - would pass on information to the media with sufficient transparency and understanding. The challenge for them today is how to cope when all the tools of governance and "top-down" logics are promptly outflanked by these unbelievably powerful mass-media systems that are so adept at "staging" events, and even have their own "situation rooms"? What remains of the traditional leaders' ability to "manage" events when virtually the only operating rules are those set by non-stop worldwide networks that sensationalize every story and reduce its complexity to a few seven-second sound bites? Moreover, the media dynamic feeds on itself and spins out of control: stakeholders end up adapting their actions, words, language and images to ensure that they are "camera ready" for the TV networks, which are only too happy to take the ready-made product. The Larsen effect - the acoustic feedback between microphone and amplifier that boosts any noise to the point of saturation - is in full swing. Everyone, including the journalist, becomes a spectator to this machine that produces news at once inaudible, emotional, and uprooting. Of course, the media have ways of checking their information, at least for "conventional" stories. But such gate-keepers fail, instantly and globally, in a large-scale crisis. While major TV network claim that they merely report on the decisions that are being taken, those are in fact dictated largely by popular sentiment, which in turn is shaped by the media coverage itself. And everyone, starting with the manager, tunes in to CNN - or other major networks, if a global "image war" happens to break out.

In other words, the "good old" crises of the 1980s and 1990s, with their confined stage and still relatively simple rules, are undergoing profound change.

1.2. The dislocation of our environments and benchmarks

As with hurricanes, which begin and grow by drawing energy from the oceans they pass over, the major crises of today thrive on, and tap into our key vulnerabilities, especially at the fault lines that scar our geographic, human and historical landscapes. Without attempting to be exhaustive, we can identify some of these fault lines that account for 21st century crisis dynamics. Let us sketch out briefly two main fields for analysis.

1.2.1. The sudden bursting of boundaries

Our world is assailed on many fronts by extravagant mutations that do not fit our normal frameworks of reference. Multiple and interdependent dynamics are completely reshaping the crises that we face today, in terms of their scope, their nature, their speed, and the conditions for dealing with them.

Demographics is surely the most critical factor. For a time we believed that modernization would flatten the demographic curve that had exploded during the 20th century, when the world population soared from 3 to 6 billion. Yet an examination of UN data does not support this hypothesis, which now turns out to be little more than wishful thinking: the next half-century will see more than 3 billion added to this figure, bringing it to 9.3 billion by 2050 (OECD, 2003). This trend produces a number of destabilizing factors, such as the concentration of these increases in poor countries, and the ageing of populations, even in developing countries. Moreover, the geographic dimension of this growth warrants detailed analysis. It is taking place for instance in the Indian Ocean and the Pacific zones, especially along the coasts and in the great deltas, those vital interfaces between rivers and sea. If one overlays these areas of demographic growth onto maps charting the major natural hazards (tsunamis, earthquakes, hurricanes, landslides) one sees a formidable potential for disasters that could easily provoke millions of instant casualties and which radically outstrips our benchmarks.

Urbanization and mass population movements result from this demographic explosion. It is estimated that 48% of the world's population today lives in cities. It was in the West that this

unprecedented phenomenon first appeared: our urban population jumped from 20% to nearly 80% in less than three generations. But with the globalization of trade, this pattern is now extending to the entire planet. According to UN projections, urban dwellers will account for 60% of the world population in 2030. And while in Western societies, with their high purchasing power, people may fancy the notion of "rurbanization", alternating city life and modernity with the quest for ecology and authenticity, we must recognize that only a tiny portion of humanity can think in these terms. The rest of the planet has an entirely different perspective of the city: it is the point of convergence, the goal of mass migrations against the backdrop of demographic shifts that are radically transforming the urban landscape of many countries into huge megalopolises. In the grand scheme of things, Paris and London now come across as small towns. Thus latter-day China has more than 40 cities with populations exceeding 2 million, without counting giants like Shanghai, where the urban growth outlook defies the imagination. The city of Tianjin, east of Beijing, already has 12 million people, and its authorities are looking at growth that would double this number by 2030. Never in the history of mankind have there been such upheavals in the patterns of societal life. Today no one knows how to cope in terms of urban engineering, and our models have all been outpaced by the overall dynamics.

The fact is that "unthinkable" issues of urbanization now confront the world as a whole. There are already nearly 650 urban areas with a million people. This trend brings with it three major challenges: poverty, environment, and insecurity. Poverty is most heavily concentrated among women and children, the most vulnerable city dwellers. Exponential growth will have a tremendous impact in terms of health, hygiene and sanitation, and in particular the vital factor of drinking water. Nor can we overlook the issue of access to education, which is crucial to the stability and security of urban areas. Here again, the gulf between challenges and capacities is beyond belief.

The explosive potential of pressures on energy costs. In the context described above, the issue of transportation becomes a nightmare, primarily in Asia but even in the West. Our current means of transport are consuming - at the expense of massive pollution - more than 60% of fossil fuel production, which is due to run out in 30 to 40 years (this is most notably the case with oil, the keystone of energy supplies). In the meantime, rising demand will inevitably spark a price explosion in fossil fuel and in transport logistics. These pressures will spark not only market disruptions but major crises at a geostrategic level. We are just at the beginning of great and profound movements that will be fed by the double impact of globalization and urbanization. The great mutation from the 20th century has to do with the degree of cultural intermingling among the populations concerned. We are far removed from the regional *rural exodus* that occurred in the old Europe: the movements now underway affect the entire planet and they are much more complex in their scope and their nature. Today, the question of "peak oil" management could bring the Western model to its knees. This is the major risk for the coming years, if not the coming months: the dynamics of anticipation (with experts forecasting the collapse over time of particularly vulnerable sectors) could be just as destabilizing as actual physical ruptures.

The environmental issue. This involves a host of questions - water scarcity and pollution, soil loss through wind and water erosion, air pollution, sudden climate change - which can produce major intercontinental and worldwide imbalances. To this we must add the impact of technological developments that are largely unpredictable but that will be both specific and systemic in nature: electromagnetic radiation, bio- and nanotechnology, installations reaching the end of their life cycle, and wastes of all kinds. The fields to be considered are innumerable, and some of them will be completely foreign to our benchmarks and our experience. In short, every problem confronts us with an unknown world; combinations of problems produce hyper-complexity that leaves our scientific frameworks stripped bare. The global context produces specific problems, of public health in particular, that cannot be dealt with on a local or a one-off basis.

The systemic fragility of vital networks. We are the heirs to a world in which risk was installation-specific - the Seveso model, where "risk control" was the issue. Now we are faced with weaknesses inherent in the general architecture of our vital systems. Their structural interdependence is far beyond the level that we began to recognize in the 1980s, when we spoke of "tightly coupled" systems. What we now have is not only a coupling of critical systems, but a civilization based essentially on interlinkages that are generalized, dynamic, and largely invisible, even to the operators most directly concerned. As a clear example of such heightened vulnerability, "just-in-time" supply chains have been implemented to excess - for example, food stocks in shopping centres are enough for barely half a day. These are not just occasional aberrations that can be easily remedied. The global economy *depends* on this structural fragility, at least if we stick to the rules of today, in particular the financial rules (which have long relegated technical or systemic security issues to the background). The question of vulnerability, then, is really no longer a problem of risk at some sensitive point - a threat for which we have a whole arsenal of risk assessment - but a structural problem, one that is intimately linked to the very way our systems function.

This principle of general interdependence holds regardless of how we approach it, whether we are speaking of physical flows, as discussed above, or virtual flows - financial and banking servers, automatic teller machines, telecommunications, air traffic control systems - or the requirements of comfort (or survival, depending on the circumstances): power grids, air conditioning. The vital nature of these factors can be measured in an event like September 11, Katrina (Lagadec, 2006a), or a heat wave. Furthermore, the principles underlying our global equilibrium can be turned against their original purpose: therefore, these factors have also become potential factors for mass destruction: "the network *is* the weapon", as was demonstrated (to a limited extent) in the case of postal services hit by the 2001 anthrax attacks and hoaxes.

Urbanization, population movements, sensitive economies, as well as collective refusals to accept risk - thus, every speck of white powder sparks a general shutdown - have become sources of weakness. Terrorist networks can exploit them, and this has been the central concern in the years since 2001. But this vulnerability can also bring major crises via natural disasters, as Katrina showed, or simply when we lose control of our own processes - as if we were Prometheus paying the price for mastering fire - as we began to see in Europe in 2001 with the anthrax scares.

As we can see already in these five dimensions, we are facing challenges that exceed our physical and intellectual capacities. This means that we must completely rethink our methods and above all our questioning in the face of such violent and extreme threshold events - all the more so, when we consider a second fault line, to which we now turn.

1.2.2. The ruptures in our fundamental assumptions

There is something more dangerous than the threat of crisis itself, and that is the fundamental weaknesses in the very design of our defence system. As Sun Tzu said in his *Art of War*, the best thing is to "attack the enemy's strategy". And the worst thing, in terms of security, is to tie ourselves up in the straitjacket of outmoded strategies, for then our failures will be systematic and generic. As that Chinese philosopher wrote, if the basic visions and the policies they induce are fundamentally inadequate, we will face "defeat in every battle". Worse, if our leaders perceive any efforts to reform their paradigms as an unacceptable challenge to their position, if therefore our methods for crisis management are constrained by taboos, "sacred cows" and blind spots, our fate is sealed. Our great weakness today is: not only to be "one war behind", but to refuse to rethink our take on the world.

In examining the major crises besetting us today, what is striking is the denial of reality, the refusal to ask (or take) questions, our mental blocks when challenged to think afresh, which go hand in hand with rigidly conformist training and preparations. If an exercise is to be held, for example, it is "inconceivable"

that it should stray from the established and accepted scripts. Psychological tensions and the fear of losing control provoked by challenging exercises are such that it is very difficult, and often impossible, to adjust the approach to risk analysis, to grasp the faint early warning signals of impending disaster, and to prepare for threats other than those of yesterday and the day before. These underlying attitudes betray themselves through knee-jerk responses. Let someone open up an unusual field of enquiry, and he will be sharply put down: "We're here to solve problems, not to ask questions!" Let someone try to introduce a hint of the unconventional into a crisis exercise, and the leaders will take offence: "Certainly not, you'll ruin the exercise!" These instinctive retorts betray a profound mental block. When such denials come that swiftly and systematically, it is clear that a very raw nerve has been touched and some fault lines identified that are no longer by any means marginal.

Historic fault lines. While attempts to make historical shortcuts are always dangerous, one cannot help drawing a parallel between today and the so-called Renaissance era of the 15th and 16th centuries in Europe. Once again, the power and universality of Western operating principles are brought into question, which provokes reactionary behaviours. The issue now is the breakdown of the balance of powers that sustains the security and the prosperity of the systems in which we live.

Geostrategic fault lines. Despite the continued presence of overarching institutions such as the UN Security Council, we are witnessing the emergence of a multitude of "geostrategic" centres, and the burgeoning of horizontal power networks (NGOs, virtual networks over the Internet, informal terrorist networks) that obey another logic and that are moreover ideally adapted to a chaotic world. We have lost most of our intellectual and even "physical" frameworks of reference in this unfathomable context. In the face of such changes, we tend to seek refuge in bland reassurances. We cling, for example, to a highly simplistic vision of a unipolar world, against those who would dream of a multipolar balance. We look no further than the familiar threats posed by "Westphalian" Nation-States, and we still interpret the collective motivations of peoples and groups in ways that fit our frameworks of rationality, while we resent all attempts to approach current evolutions through the concepts of "civilization crisis" or "identity crisis". This illusion brings great comfort for the moment, but it remains an illusion, and it paves the way for severe disillusionment when reality blows away the flimsy and makeshift windscreen that (barely) protected us for a time.

Such were the shocks of September 11: how could anyone imagine that individuals who on the surface had been successfully assimilated into American society, could attack both the economic and financial heart and the military nerve centre of the only remaining great world power - by hijacking airliners with simple box cutters? Yet many other, equally astonishing shocks are brewing, and it is time to explore them as so many major geostrategic faultlines. As examples we may cite the re-emergence of central empires (most conspicuously, Iran), the emergence of new entrants, and the assertion of new identities (for instance among the Hispanic community in United States and Muslims in Europe). These are the new paradigms that will determine the risks and crises of the near future.

There are ***fault lines as well in our basic models of governance.*** Our approach to managing societies, even more so to managing crises and other emergencies, is now in question. The most recent large-scale crises (the tsunami, Katrina, the heat wave, Argentina) force us to be especially attentive. The advent of the information society provoked by the Internet, the inversion of communication channels, which are ever less "top-down", ever less the property of any power, but increasingly connected and attuned to real-time, are exploding our pyramidal, segmented and sequenced societies. The societies that are emerging are structuring themselves around networks and concepts of power that have nothing in common with the democratic practices that the advent of the modern industrial world produced. We are confronted with something else, a system that is not yet clearly defined but one where meaning is constructed quite differently. The breakdown of trust between civil society and the established powers can be traced to this transformation in the ways of action and of communication in the field. It is a groundswell that affects the

whole world and that calls into question the resilience of the democratic model and its capacity for change. Joel de Rosnay (2006, 1995) takes this point further to declare that we are tottering away from the democratic model, towards a higher model, that of the "symbiotic". This rupture, as he sees it, will break us free of the bonds of power that have become obsolete in our way of life, that hinder the circulation and exchange of information in a world that has become infinitely more complex. It will give us greater capacity to collaborate and to be creative, through the networking of skills and talents, which will release us from current institutional constraints. If his analysis is correct, what we are witnessing is no less than a genuine revolution that will reshape from the bottom up the very workings of the world's societies.

Fault lines in our vital foundations. This breakdown is even more taboo than the previous ones, because of its extraordinary potential to spark anxiety. When all is said and done, we may come to see the very workability and sustainability of the foundations of our way of life called into question. No one can imagine that the authority, the security or the prosperity of the West could be suddenly overthrown. Yet the World Economic Forum in Davos (2006) put the question bluntly: if the financial, fiscal and economic wizardry on which our entire vision of power rests were to collapse because of a misread threat to the oil supply, or from an emerging power, or terrorist networks, how resilient would the Western system really prove itself to be? In fact, we dare not ask what might be the systemic effect of a breakdown that would hit hard and simultaneously at a hyper-indebted United States and an imploding Europe (where key countries such as France, a member of the Security Council, and Germany are very fragile), or a terrorist attack on the Arabian Peninsula, which would create an oil price explosion, or an attack against Pakistan, which would pave the way for "inconceivable" scenarios.

With today's unprecedented shocks, we could easily lose large swaths of territory if our reading of reality and its challenges remains as narrow-minded as it tends to be. We must now make this notion of "the inconceivable" the centrepiece of our thinking on risks and crises. Indeed most of what we call "inconceivable" is not so because of the "natural", *a priori* limits of our understanding, but simply because our constraints, our models, and our yearning for comfort and avoidance have led us to put under this artificial category, as in a "no man's land", a number of issues nobody wishes to tackle. When our frameworks, or intellectual "boxes" collapse, "out of the box" solutions are required. Today's most commonly witnessed answer to "unthinkable" events, which combines denial and emotional overreaction, cannot make up for our lack of vision and the deficiencies of our policies.

The combination of these two fault lines - the hyper-complex dynamics of events and increasingly shaky societal foundations that can "liquefy" in an instant (as land reclaimed over swamps does during an earthquake)- are producing a world of risk that is totally foreign to us, one that is "barbarian". The issue is not this or that point of uncertainty, but rather the global and systemic descent into this unintelligible world of the chaotic - a world in which notions like discontinuity and the inconceivable become watchwords. Averages, statistical regularities, and the lessons of history are no longer pertinent points of reference. The atypical, the singular, the exceptional becomes the order of the day. And when the pace, the scope and the nature of the terrain thus depart so abruptly from the accepted blueprint, our visions, our initiatives and our tools rapidly fall apart.

We must rebuild them, and urgently.

CHAPTER 2

OPERATIONAL RESPONSES : BETWEEN KNOWLEDGE AND INVENTION

Summary
Action. In the face of a threatening crisis, our intellectual and managerial tradition calls for us to prepare plans. Those plans set out actions and approaches that will be applied at each stage of the crisis. They are fine structures that involve a whole array of responses, in the style of a victory parade where everyone marches in step to an impeccable choreography. Unfortunately, reality rarely fits the plan's assumptions: warning signals are not recognized, managers disappear from the scene, tools do not work. The crisis unfolds on a battlefield fraught with difficulties, and not on a tidy avenue or square prepared for an orderly parade. As the experts continually point out, what matters is not so much the plan as the planning. If we do not heed this, we are bound for failure.
This chapter reviews what our grand systems are most sorely lacking in:

- An "emergency culture", an elementary crisis culture: these are known responses, and we must be aware of them.
- And henceforth: the capacity to deal with unconventional crises that demand reinvented responses.

The debriefings and investigation reports of recent decades point up two kinds of basic inadequacies in our large organizations. Firstly, in many organizations, (apart from those specifically emergency oriented, such as police, fire brigade, etc.) there is an astonishing lack of capacity for emergency response. Secondly, we have failed to take on board the widely documented knowledge and know-how for conventional crisis management. It will be impossible to navigate the world of major crises now emerging without sound mastery of these domains.

Yet we must go even further, to the point where the most recent post-crisis analyses and preparedness efforts usually fall flat: we do not yet have the operational guideposts for dealing with the unconventional crises that are in fact our real source of vulnerability today.

This chapter has a dual purpose: to recall the knowledge we think we have acquired (but in fact have not, in whole or in part), and to begin to explore these new guideposts, which for the most part remain to be built.

A. RESPONSES TO BE UNDERSTOOD AND MASTERED

2.1. Emergency response capacities

Summary. Rescue squads are fully familiar with the demands of responding to an emergency: *detect, warn, intervene, report.* With the current and emerging crises, everyone will have to know the essentials of emergency response doctrine, and to recognize its limits as well, for the capacity to react to emergencies must not blind us to the shortcomings of our more fundamental ability to deal with the great upheavals of today.

Major crises reveal, most often, that our systems, private and public, have not acquired the reflexes essential for dealing with emergency situations. It is true that the unconventional crises at issue here are far more complex than the accidents that our rescue squads are used to dealing with. Yet even for

situations where the stakes are high, we need such a culture of rapid response to unforeseen situations, which is usually lacking among those more accustomed to case management than to rapid response to an immediate problem.

Experience shows the need for a number of key capabilities:

- ***Detect*** an emerging incident promptly. To be avoided from the outset: an irrepressible urge to dodge the issue; and visceral refusal to recognize any signal; a stress level so high as to be rendered incompetent; the illusion that a specialized unit has been alerted and will take care of the situation without the need for action on one's own part, etc.
- ***Give warning*** internally, to mobilize resources commensurate with the task at hand, without thinking that one can handle it alone.
- ***Intervene***, by rallying capabilities, information and tools immediately. Even in an emergency, meticulousness is essential. Just because events are abnormal is no excuse for doing silly things and transforming an acute problem into overall confusion. And then there is time management: an emergency demands intervention now, not postponement to the beginning of next week.
- ***Report***, to optimize the internal flow of information so that the response can be constantly adjusted.

These props are not enough for dealing with complex crises, and still less so with the great crises coming at us now, but they are necessary all the same. We must understand them, master them, and control them, and not become hostage to them.

In fact, these rules of emergency response were developed essentially for situations with clearly defined characteristics:

- A stable, charted, known world free of surprises that could upset all our management benchmarks, *ceteris paribus*.
- Strong, clear and unambiguous warning signals.
- A problem that can be resolved by technical specialists, working within customary operating frameworks.
- A need for information that does not go beyond a small number of persons and that can be communicated after the affair is settled.
- A simple command approach to management: a fireman or an emergency medic does not ask the victim's opinion before applying the usual treatment.
- Costs which can be readily handled by the insurance system, and which has no major problem in returning to normal.

As soon as we move up the scale of severity, some important discrepancies appear vis-à-vis the natural field of application of emergency tools:

- In terms of technical complexity, there is a discrepancy of scale.
- In organizational terms, there is a discrepancy of complexity.
- In terms of governance, we move from a clearly defined field of operations to fields that are much more fluid and call for operations that are much less automatic and much more deliberate, with leadership structures that are more complex than for routine accidents.

We need new skills, then, on two fronts:

- The ability to deploy this emergency mindset: otherwise, bureaucrats will wait too long before intervening - and in all fields, especially in highly unstable situations, the fireman's rule applies: "one minute, a glass of water; 10 minutes, a truck; one hour, a whole fire station".
- The ability to control all these rapid response levers, without getting tied up in conceptual straitjackets that reflect the frequently heard complaints of people ill-prepared for events of strategic dimensions: "We're here to solve problems, not to ask questions", or "In a crisis there's no time to think".

However sophisticated the methods and tools recommended for handling the most complex crises, however difficult the situations for which we must prepare ourselves, the basic capacities cited above need to be (i) thoroughly acquired and (ii) sufficiently internalized so that even a mega-scale event will not overwhelm them.

This last point is very important: often, the surprise element and the sheer enormity of the situation will make people forget the mechanisms they had learned to wield in less intense events.

2.2. Crisis management capacities[3]

Summary
A crisis is qualitatively different from an emergency. The problems coming at us from all sides do not fit within the normal bounds of conventional emergencies. In order to anticipate, react, handle and resolve critical problems, organizations must be able to understand this world of crisis, and its pitfalls, with which they are most often totally unfamiliar and they must have a response mentality that is suited to this unstable world. Non-conventional crises will of course demand a good deal more, but the elements presented below have increasingly come to be seen, since the 1980s and 1990s, as an essential basis to be understood and applied.
The essential requirements to have in place are:

- Prevention, anticipation and monitoring capacities.
- Rapid information flow, even with weak signals.
- Crisis teams and stepped-up surveillance.
- The ability to make expertise operational (to clarify the limits of knowledge).
- Open, shared and networked leadership.
- Top-quality communication from beginning to end.
- Management to the very end of the crisis.
- Post-crisis healing initiatives.
- Objective ongoing strategic intelligence.

The first requirement for large organizations and for managers is to know their way around this world of crisis, which contrasts sharply with that of emergencies. They must be able to operate in this terrain, marked by ambiguity, uncertainty, instability, and accelerating rhythms - and above all, the threat of destabilization. The architecture of crisis management has four phases, each with its own demands.

[3] The following sections draw heavily on previous publications of Patrick Lagadec (in *Apprendre à Gérer les crises*, 1993 and *Traité des nouveaux Risques*, Gallimard, 2003, with Olivier Godard, Claude Henry, Erwann Michel-Kerjan).

2.2.1. The reflex phase: avoid being immediately discredited

Decoding, alerting, mobilizing. The longer we wait in a crisis, the stronger the dynamics in play will have become. We must know how and be able, then, to give advance warning and get mobilization started. This presupposes mechanisms of surveillance and mobilization, which need to be effective in two situations.

Obviously accidental phenomena. In recent decades, large organizations have adopted tools for prompt transmission of urgent information from the field in the wake of an accident: message formatting (the types of data to be transmitted are already formatted and all that is needed is to fill out pre-established forms), urgent information channels (to prevent data from being lost in the system), rules for triggering the crisis response. Of course, the existence of a plan on paper is not a sufficient guarantee: there must also be mechanisms in place, they must be operational, and everyone must know what to do with them. This presupposes an in-depth learning effort to understand the tools, the procedures, and the approach.

Creeping crises. These crises are by definition difficult to discern, due to their inherent stealth. Experience shows, however, that they can be identified by their symptoms: a strange sense of drift, an unusual degree of ambiguity within the organization; arguments advanced that are purely technical (calendars already full, authorizations already obtained, the point of no return is past) to block early moves; the prolonged and inexplicable absence of key personnel, in particular a manager who is both clearly identified and plays a clear role; widening gulfs between participants, between the situation developing and the values proclaimed; the impossibility of putting together a meeting on the latent problem, etc. None of these factors, taken separately, is enough to say that we are in a pre-crisis situation. But when several of these factors are at play, we should pay very careful attention. And if, along with some of the others, the last factor mentioned should appear - the refusal to recognize that there is a problematic situation - then there is a strong chance that we are in a risky situation and one that may already be far advanced. It is urgent then to reconsider the overall situation, the assumptions made, and the positions previously adopted.

Taking charge. We must ensure immediately that certain steps have been taken. It is through practice that we can learn to strike a proper balance between the inability to mobilize and the constant upheaval caused by untimely mobilization whenever an unusual signal is received.

Commit the emergency resources necessary. We must of course look hard at the most complex aspects of a crisis, but we can never neglect our essential duty to rescue people or to make the technical interventions needed to prevent the situation from getting out of hand.

Actively seek out information. We need to assemble factual information, to discern the uncertainties, to understand what we can know promptly and what we will know only later, to know what has not been affected, to begin to make out the nature of the problem (is it an isolated incident, or a generic phenomenon?). There is a basic rule here: the first information received is very often false, particularly if it is reassuring. And if by chance we receive disturbing information presented in a "reassuring" manner, this will likely mean the organization has already been compromised by the crisis.

Open a logbook. It is important to construct a memory of the event immediately. The written record will constitute a database useful to everyone, retaining information that might be lost when there is a handover of responsibility (since crises can last a long time, and the same person will not necessarily be in charge from beginning to end).

Put together a team, and isolate treatment of the crisis. There must be no void at the helm (with no one really in charge), but at the same time the "bridge" must not become too crowded with people (often starting with senior managers) who come to see what's happening (without really getting involved), who

make statements about the situation without understanding it, who offer "reassuring" remarks, and who loudly comment on decisions without really taking any responsibility. We cannot have the entire organization dealing with the crisis - except for an event that affects the organization as a whole. Units that are not involved must be able to keep on with their normal work, and those that have to deal with the crisis should do so effectively.

Communicate. A crisis or pre-crisis situation demands both a strong presence and great transparency. The model to follow, at least in most cases, is the reverse of that described previously, which starts from the undoubted need to know with certainty and to be able to reassure before informing. Above all, when issuing a communication in which the informative element will at first be inevitably weak, three major "political" steps must be taken:

- Demonstrate that the situation is being taken seriously: the managers are indeed at the helm and have not jumped ship; they have launched actions; they are following procedures that do not depend on improvisation.
- Recognize the problem (or at least the fact that some believe there could be a problem): this will never be extracted from decision-makers.
- Recognize the stakeholders: this is the essential point. Decision makers are not required to perform miracles, but we expect them not to ignore the individuals and groups concerned.

This three-way demonstration of competence and openness in information and in the public procedures followed is the only effective way to prevent mounting anxiety. There is nothing that sows panic more readily than the suspicion that leaders are incapable of handling the situation and that they are bogged down in the governance models of another age.

Communication cannot of course be confined to the media. Some target audiences must receive special attention: in the first place there are the victims, who are entitled both to tactfulness and to competence; then there are the professions most directly concerned by the problem, for example physicians and pharmacists in the case of a public health problem, or the specific experts in the case of a technical difficulty.

The most important thing to bear in mind is that people are reassured not by insisting that "everything is under control" but by demonstrating that the situation is being taken seriously.

Of course, in some fields and in some circumstances, communication cannot be so frank. But this must be a strategically motivated choice, and not simply the result of incompetence or inertia.

2.2.2. The reflection phase: avoid being immediately discredited

In a crisis, it is not enough to commit resources. The problem at hand must be thoroughly examined, the people to work with must be identified, positions must be thought out on the thorniest questions, and the broad lines of response must be established. This reflection function, performed with the necessary intellectual detachment, must be launched as quickly as possible and must continue throughout the crisis. A crisis cannot be handled by mere instinct, nor by quasi-automatic procedures.

Start the questioning. The first requirement, once initial emergency steps have been taken, is to ask in-depth questions about the situation - at the very time when urgency and stress are likely to block any serious examination. It is especially important to avoid overly optimistic conclusions that would support the most favourable hypotheses, the most comforting interpretations, and the most obvious interests. The key questions are these: What is really happening? What does this crisis mean, what does it reveal? What could emerge from it? What are the latent fault lines that could be reopened? What could feed the crisis,

in the current context? How will the various stakeholders perceive the situation? What are the alternative developments that we can anticipate, what will happen tomorrow, in a week, in a month?

This kind of diagnosis is gruelling work, for too many elements will elude us, and too many of the suggested hypotheses will seem off-the-wall. It takes constant shuttling between indicators, models, hypotheses and observation, but it can gradually define a field of work (just as a surgeon prepares his operating field) and thereby avoid generalized to-and-fro and fragmented responses, or the exhausting attempt (with the attendant one step too late) to pursue all the variant versions of the crisis.

Map the players. A specific effort is needed to identify all the stakeholders who will be involved in the crisis: obvious players, peripheral players, surprise players; players who will quickly collapse, players who will charge from the edges right to the center; relations between players that will change, sometimes radically (yesterday's adversary can become the key to the solution today). If we stick with our pre-crisis prejudices, we will never catch up with the dynamic reality of the crisis: here as in all other areas, we must be bold in our questioning and resolute in looking for new approaches.

Start networking, get out of the bunker. To pursue such questioning successfully, to prepare a pertinent response, we must go beyond the normal circle of players. We must establish links with many outside entities. Even if some of them are in conflict, it is better if they can recognize and talk to each other, as promptly as possible. Experience shows the wisdom of forging or re-establishing these links before a crisis forces us to do so, for otherwise it will be done under the pressure of an extreme emergency, with absolute constraints, and people, organizations and cultures will no longer have the flexibility needed to adjust. But we must also recognize that such openness is not at all natural: on the contrary, in a crisis everything conspires to cut off an organization from most of its environment, and this can very quickly render any exit impossible.

Put together a management system. There are many players in positions of influence and responsibility. The rule of thumb for emergencies, so clear and comforting on paper - "a leader, a mission, and resources" - is not of much use. The principle to follow is, rather, to construct an ad hoc decision-making system, relying naturally on existing managers, but also enlisting in the most appropriate manner the major players who will have a key role in the situation, as it is and as it threatens to become. Some groups may indeed prove themselves decisive in the situation, even if they were previously deemed a negligible quantity. This structure will have to be made explicit. To ensure that the appropriate players really take charge, to guarantee the functioning of the interfaces, the response system has to be clear and thoroughly understood.

An essential point: in a severe crisis, the authority of the decision-maker flows not from his ability to issue peremptory orders, but rather from his capacity to collect information, intelligence, powers and resources and redistribute them widely. This intelligence, both conceptual and operational, will give managers the indispensable adhesive force to mobilize large systems for useful ends, and to achieve the necessary coherence. This is not to say that we have stripped the managers of their prerogatives, far from it. One of their essential tasks is indeed to explain the rules of the game, which are indispensable for reducing the risk of break-up and splintering inherent in any crisis response. Those rules can be amended as the crisis proceeds, but they must always be as precise as possible, and clearly linked to fundamental goals: flexibility must not be confused with wavering.

In support: a strategic thinking unit. If a crisis of any complexity is to be managed successfully, the leaders must have the support of a group of analysts who can stand back and look at things dispassionately. The task of that group will be to anticipate possible developments in the situation, to keep all aspects of the crisis under active surveillance, watching in particular for mistakes "waiting to happen", and to think about new options for consideration.

This unit should be staffed with people who are used to "thinking outside the box", but who have a sound dose of good sense. It should be devoted exclusively to the strategic thinking exercise, which is a demanding one because it requires sifting the entire field of possibilities and venturing frequently into the supposedly "impossible", in order to be certain that one is not prisoner of an outmoded *weltanschauung*.

Finally, this unit must be in position at any moment to produce a situation summary or briefing sheet for management. Too often, a manager will be submerged in a mass of details and surrounded by evidence that no longer pertains. It is essential to deliver to him, when he calls for it, a strategic note based on the model provided below, and strategically more useful than the traditional "logbook", which can serve as a general reference source but is of no help for rapid managerial response.

Strategic briefing note
Date and time

- Essential facts.
- Technical scenarios: developments, possible domino effects, surprises.
- Stakeholders: participant map, surprises, recomposition of forces and relationships.
- Gaps, deviations and blunders: on the spot pinpointing and anticipating of all the major mistakes committed or about to be committed.
- Discontinuities: what has changed fundamentally in the context and what renders assumptions, rules, working and communication approaches obsolete.
- Progress made: it is very important to identify success stories that can breathe new strength and optimism into the system.
- Proposals for decisive action that can be used as levers to transform the situation, break through bottlenecks, and open hitherto unthinkable possibilities.

Identify fundamental positions. The essential values in crisis management are the acceptance of responsibility (for the safety of the community concerned), openness with information, solidarity in shouldering the economic and human consequences, and creativity in response to the problems encountered. These principles are increasingly being applied, and they stand in contrast to the reticence and secrecy that prevailed in the past. Yet these fundamental principles are not yet ingrained, and they can be quickly relegated to the background by the sense of urgency, the fear of debate, and the attractiveness of a purely technical solution. Yet adopt them we must: no serious crisis can be managed without defining and declaring the values and criteria that will serve as reference.

Those same requirements apply to the quality of the decision-making process. Decision-makers are not expected to come up with magic solutions, but they will be expected (immediately or subsequently) to take an approach that is not only technically sound but also explicit, transparent, and open to debate and validation both by experts and by society. Thus the principles followed will have to be clearly stated so that they can be understood and discussed, and perhaps refuted. The broad lines of the rationale to be followed should be clarified, and so should the "no-no's" that are to be observed.

The deeper the crisis is, the more open one must be to the prospect of reappraisal and questioning. If a crisis is "the moment of truth" (as in Greek theatre), then the way it is handled really calls for a "truth test", for a meticulous review. There may be Rubicons to cross (lines that were hitherto deemed uncrossable) that will demand both boldness and discretion, the acceptance of responsibility, and the search for legitimacy. This is surely the most delicate point in a crisis.

2.2.3. Throughout the crisis: maintain overall coherence

This third phase involves efforts to maintain consistency in action, when everything is tending to fragmentation. This must be done in the light of constant and fundamental reflection, to the very end of the crisis.

Managing a weakened system. The key point is not managing a set of operational tools but rather building a permanent strategic framework in which each player can act most effectively. This requires constant attention to the main flow of problems, without being distracted by the twists and turns the crisis may take. The following principles of action can help: ensure that the organization has effectively taken charge of the crisis (that it is effectively mobilized); define priorities and responsibilities; ensure high-quality internal and external communication; watch for weak points and fix them; anticipate developments in the crisis; take determined initiatives (instead of just "following the crisis hour by hour" as we often hear); keep in mind the post-crisis phase.

An ad hoc organization must be put in place to handle certain key functions: decision making (overall guidance), management (monitoring the situation and technical actions), communication (listening to information, issuing messages). To this we must add two support functions: detached observation (staged input of strategic intelligence at the highest level of responsibility); and logistical support for the crisis teams (the crisis usually presents a series of cascading difficulties), ranging from food issues to problems of local mobility, liaison).

Clearly defined task lists can be prepared for each person in these units. An essential point: arrange a site where this crisis organization can operate; assemble all the personnel required; know how to make the organization operate so that it does not shut itself off from events; provide guidance for these different groups with a constant view not only to immediate technical effectiveness and overall coherence, but also to anticipating and asking questions about potential surprises and mistakes.

Secure the required expertise. The issue of the potential input of expertise and its limits needs to be addressed up front. We must ask: what kind of diagnostics and answers are required, how fast, reliable and credible must they be, and which team of experts can provide them? In a crisis, the decision-maker often has to act without expert input, or with only partial support from specialists.

While the experts are working, they should be allowed to do their job in peace, without pressure from the decision-makers to come up with immediate answers. While awaiting those answers, the decision-makers can ponder the likely outcomes, and the options that will be open, depending on the answers received.

Do not confuse roles. The expert is there to offer specific clarification: the decision will always entail multiple dimensions, and it is the leader who will have to put everything together.

Responding to the demands of communication

Media communication. This is the most visible aspect. The requirement is clear: to demonstrate the ability to provide high-quality information throughout the crisis, from beginning to end. The main guideposts for action are the following:

- Respect the fundamental requirements: external information is both a duty in a democratic society and an operational requirement in any crisis. To shirk this duty is to expose oneself, immediately or eventually, to repeat crises. And if the demands of decency are obviously being flouted, the crisis is likely to become definitively unmanageable.
- Know how to manage communication throughout the crisis: suitable presence and statements, from the onset of the crisis; competence, when the media come up with more pointed questions about prevention, responsibilities, and who is in charge; perseverance, to the very end of the crisis.

- Demonstrate the ability to meet the basic demands of crisis communication: not to "reassure", but "to inform"; provide frequent, accurate information that is as complete as possible; maintain consistency in consecutive messages (recognizing that some of the information may be wrong).
- Have available an organization and ad hoc tools to perform this mission: spokespersons prepared to deal with the media; well-marked press centres; respect for timetables (taking account of the imperatives of media deadlines); appropriate handling of different media (each with specific needs); communication tools: lists of correspondents, having data at hand for various possible scenarios; references and background data (on the activity, organization, previous crises or problems, etc.).
- Even if "crisis fatigue" sets in, remember the main no-no's: don't lie, don't fall into stress-induced arrogance, keep a sense of responsibility and balanced judgment, and avoid conjecturing and drawing hasty conclusions; don't be "in tow" to the media, and don't abandon the decision-making role to them.
- Move from a defensive stance (falling back on set arguments) to a more positive one of explaining the difficulties in play, the responsibilities accepted, the trade-offs made, and the core values being guiding the operation.

Non-media communication. Victims and their families, government departments, elected officials, employees, clients, suppliers etc. require ongoing attention. To ensure good communication, identify the multiple audiences, priority target groups, and their specific needs.

Networks and specific procedures should be in place for reaching the domestic public swiftly and regularly: this is one of the most important points, which "media shock" may cause us to overlook. Resource personnel should be on hand for briefings on the situation just before or just after the press conference; make sure that dialogue structures are functioning.

With respect to victims and their families, the golden rules are these: provide prompt information (but watch out for the pitfalls of modern communication tools: one doesn't announce deaths by telephone); be tactful and don't let the victim or the family feel abandoned; offer help in overcoming the many difficulties that victims face. Here again, there are technical procedures of intervention to learn and apply, such as designating senior contact persons to whom victims can turn to iron out the inevitable bureaucratic problems, or setting up information and reception centres representing all the potential sources of help for victims, including psychological assistance and victims' associations.

A word of caution. "Crisis communication", a term invented in the late 1980s, will never be the master key to all problems. The success of communication in times of crisis depends in large measure on previous communication: it is no use to wheel out the "media war" guns at the last moment. While communication is an important aspect of crisis management, it is not the only need. We must not fall into the trap of regarding communication as the be-all and end-all of crisis management. Similarly, we must remember, once again, that crisis management is only feasible as part of a general effort at risk prevention and exposure control. Otherwise, communication will be virtually impossible when a crisis strikes.

Manage the crisis right to its end. A crisis has its own dynamics. It begins most often with a peak or shock, then plateaus for a time (with a number of resurgences) and ends abruptly or, more frequently, drags on to a conclusion. In the shock phase, the means of response are weak; during the plateau phase, too many teams can impede efficient work; the terminal phase may be marked by weariness and, again, insufficient means. Here are some "Commandments" for dealing with this last phase of the crisis: stay mobilized until the problem is finally resolved (resisting the temptation to stand down at the first favourable signs), but don't keep the machinery in place longer than necessary (one must also know how to end the crisis); don't confuse the end of the media crisis with the end of the real problem. These difficulties

underline again the fact that crisis management is a strategic business right through. If senior managers refuse to commit themselves, or do so at the wrong time, major difficulties are bound to arise.

2.2.4. The post-crisis: remain vigilant, and know how to make the necessary changes

Despite the weariness that sets in at the end of a crisis, one must cope with the post-crisis, its unexpected twists and turns (any weakened system can have multiple complications), and its longer-term fallout. One must know how to handle the healing process. One must measure the need to forget and the need to re-live the experience, in order to avoid dangerous internalization, to deal with guilt, to correct the failings revealed, and to prepare for the future. Post-crisis work should not be approached merely as assistance to a sorely tested organism: during the episode, individuals and teams will have shown their mettle, and we should build on that. Major initiatives can be taken, provided they have been clearly identified and studied in detail to avoid simple gadgetry.

Beyond the necessary work of healing, there are changes that must be made: a crisis brings out all the deep-down inadequacies that must not be left as they are. In operational terms, it can be useful to set up a special group in charge of these various post-crisis dimensions. During this final phase, "opportunities" will reveal themselves, and a management group should be able to seize them and thereby make further progress towards the best kind of healing there is - to make sense of events and to open doors despite the ordeals of the crisis.

B. RESPONSES TO BE INVENTED

2.3. A "grammar" for chaotic crises

Summary
Emerging crises, generated by an ever more turbulent and chaotic world, call for much more than the reflex capacity essential for dealing with emergencies, and more than the capacities for networking, for transparent and shared leadership, and for communication that are so essential to managing "conventional" crises. Henceforth, we will have to become familiar with other strategic and operational ground, and we will have to mobilize other skills. These relate to:

- Surveillance: a new respect for signals.
- Leadership: committed involvement by managers.
- Strategic intelligence: "Rapid Reflection Forces".
- Collective response and communication: empowerment is a vital notion.
- Crisis recovery: embedding the recovery issue upstream.

The great mutant crises of today are propelling managers into a de-structured and shifting terrain, where the watchwords are speed, counter-intuitiveness, ignorance, discontinuity, loss of bearings. We do not have a very solid base of knowledge and know-how in this terrain. But there are some guideposts to help us prepare, move forward and be inventive.

2.3.1. Surveillance: a new culture of signal detection

A simple emergency requires that the sectoral agency responsible have the capacity to react automatically to a clear and specific warning and to feed it promptly into the normal channels and frameworks for interpretation and processing. A "conventional" crisis calls for the capacity to process signals that may be disguised, subtle, or scattered. The agencies in charge then have the obligation to set up more elaborate receptors for detecting more complex phenomena, and systems and arrangements for assembling information, in order to ensure prompt reactivity. An extreme, off-the-scale crisis will demand something else: the ability to spot the signs of phenomena that cannot be represented by any known model.

In that case, the alert cannot be given automatically (as in an emergency) or partially pre-formatted (as in a crisis), using pre-established principles.

At this third level, the "unconventional crisis", we need a very different kind of intelligence, understood no longer simply in its Latin meaning (the ability to learn and understand) but also in its modern English sense: "the capacity for information discrimination with a view to a decision-making". The first obstacle is obvious: we have to capture a phenomenon not previously identified. In surveillance we do not have a set of boxes to be filled in, nor any accurate indications of what we might detect. More than "weak signals", we need to look for signals that by their nature are virtually silent and especially elusive for the receptor systems we have available.

But surveillance also encounters a second obstacle, usually overlooked, and yet decisive in the dynamics of fiascos: this is the "delete key" that, when pressed, unleashes the phenomena we are still trying to identify. Explanation: as soon as they are detected, or even suspected, the signals we are looking for will trigger the vague sensation of a major threat to the system, which in turn triggers an irrepressible and instantaneous need to delete and avoid. The signal carries within itself the ability to neutralize the receptors, and more: it will also block activation of the alert mechanism and the transmission chains, and indeed any idea or inclination for mobilization and reaction. That is why, in their post-crisis reports, investigators have consistently declared their "consternation" upon realizing, after the fact, how many players had been deaf and blind to the event in question. The report writers have not only the benefit of hindsight, as is commonly stressed: they are exempt from the effect of this mental and decisional block triggered by an unknown "shape".

If non-conventional surveillance is to be possible, it must be entrusted basically to persons and systems with the appropriate form of intelligence. We may distinguish three forms of intelligence, adapted to three different situations: emergencies, conventional crises, and extreme crises. Only the third is pertinent in the case of non-conventional signals:

- ***"Procedural" intelligence***[4]. This form of intelligence is most useful for identifying, relaying, and classifying and filing well-identified and repetitive phenomena. Operators here are most comfortable with the surprise-free deductive approach. A signal will be perceived and transmitted if it corresponds to what the programme predicts. With this kind of intelligence, the operator can pick up the signal and take action if he has 80% of the necessary information, and if the remaining 20% raises no more than marginal questions. Otherwise he will wait or ask for additional information, and perhaps irrefutable proof as well, if the risk is high (the operator is paid to capture, process and classify data, not to take risks). The relationship to the real world is rather defensive: the system will accept from outside only homogeneous data series, which will be placed in the prearranged boxes. Obviously, the non-conventional is rather awkward for this type of intelligence. If it crops up, if it becomes pressing, it will trigger the classic traits of deafness, to the point where mechanisms will be put in place to keep things in the order they are supposed to be. Dino Buzzati described this point eloquently:

  "I want the guards on watch duty to use normal means, and in particular not to use non-regulation optical instruments, which are often employed carelessly and can readily lead to error and false interpretations. Any soldier who possesses such instruments must report them to his company commander, who will confiscate and keep them." (Buzzati, p. 195).

- ***"Intuitive" intelligence***. This operator is working with 20% of the necessary information, and has to rely on his intuition to fill in the possible scenarios. He is able to capture unconventional,

[4] Cf. the notion of "procedural memory", which is what allows us, for example, to start up our car without thinking about it.

non-homogeneous and unstructured information that does not fit into the normal formats and procedures. He accepts the principle that he must take stances and provide answers for which he has no proof. He works mainly in offensive and interactive operating modes and motion is his trigger for action.

- ***"Creative" intelligence.*** This is imperative for detecting signals that are not yet known and categorized. The modes employed are imaginative and innovative, free of codes and rules of the game. The operator works with a field of information outside the "real" as perceived by a "pragmatic" person. There is very little information available, and the operator must move about mentally in "no man's lands" where certainty is nonexistent, elements are constantly mutating, there are voids on all sides, and reality first appears as patchy. The operator who possesses this type of intelligence is quite at ease and even stimulated by what cannot be captured, and is highly handicapped when he has to work in a world of stable and repetitive data crunching, i.e. the world of procedural intelligence. But that is not what we expect of him for operating in an abnormal situation. A person who has developed this creative intelligence will actually be able to take himself "out of the box" and go beyond taboos; he will be able to see strange intersections among highly disparate and at first sight meaningless data; he feels comfortable and creative in a destabilized world, where the dice have not yet been rolled.

Detecting an off-the-charts phenomenon can be made much easier by an approach that is seldom used spontaneously, but which a creative person can readily adopt. This method starts with the following findings: while it is often difficult to detect the phenomenon itself, it is infinitely easier to recognize its "signature", which may often be perfectly clear and even exaggerated. As in biology, the best way is to look for the defence mechanisms that are triggered by an allergen. The non-conventional phenomenon we are looking for will act in the same way on the individuals and organizations concerned. For instance, the demands for "proof", assertions of "optimism", the compulsive need to "reassure", the need to "bunker down", reliance on technology, the pitfall of our beliefs and our *a prioris*, double locking of all the doors, veto on questioning the agenda, etc. There are, then, ways of detection that can help greatly. But this assumes that we have accepted a shift of vision: what we must seek is, by definition, something that the system is by no means ready to perceive and to process. The objects of our search are not "in the spotlight", they are in our "blind spots" and, more precisely, in places that are taboo (the best taboo being the one that is so well accepted and understood that it does not have to be stated).

This kind of non-standard surveillance involves quite a sharp break with practice. First of all, we will have to engage in some very bold questioning that will stray well off the charted path. Today, our organizations are caught up in increasingly procedural operating modes. Risk aversion, a surfeit of plans, constant certifications, guarantees of all kinds, only accentuate and confirm their addiction to established responses. What we must do now is to venture beyond these charted waters, into places for which there is as yet no information, and where the rules of assessment are not formatted in advance. Detecting unconventional risks means running risks, which will be all the bigger when the signals we must perceive, work with and transmit are "barbarian". This will pose acute difficulties for systems, and we must address them.

2.3.2. Leadership: committed involvement by the managers

In emergencies, the technical specialist is the essential operator: he will have backup from the entire organization, and the responsible manager is there to ensure that there are no particular implementation problems. Specific crises call for full engagement, and the first function of the crisis teams is to set the course, maintain coherence, and ensure liaison. For an unconventional crisis, the leader must play a much more crucial role, directly and personally. Questions of vision, of choice and of strategy come to the fore, in place of technical management tools. It is no longer a question of simply "running things".

When our bearings are lost, when meaning dissolves, and when the customary field of action disintegrates, as in non-conventional crises, nothing can be achieved without exemplary leadership from the pinnacle of the organization. When perspectives vanish they must be reinvented. When lines of action are destroyed, they must be re-created. When the customary networks of players are no longer the pertinent ones, they must be redesigned. Only in this way can we hope to restore identity, confidence, liaison, and a constructive collective will.

Leaders must be in a position from the outset to provide essential partners - which usually means the general public - with the following:

- Clarification without fudging the issue: phony "reassurances" will only undermine confidence.
- A broadening of the stakeholders' map, the questions, the rules. The instinctive reaction is to retreat into the recipes of the past; this is very normal, but it confirms a fatal mental block.
- The willingness and the capacity to look beyond the normal horizons, in spite of ambiguity and knowledge gaps: to counter the loss of direction and of operating frameworks with a plan, benchmarks, and a dynamic inventiveness.

This implies that the leaders must be heavily involved. They have to break through the conventional limits, which are no longer relevant; they have to slip across old boundaries and invent new collective responses. The leader cannot shirk this duty, which is in fact the core of his responsibility. When vital issues are at stake, nothing can be done without determined personal and direct involvement from the top. As Henry Kissinger put it, "The most important role of a leader is to take on his shoulder the burden of ambiguity inherent in difficult choices. That accomplished, his subordinates have criteria and can turn to implementation". (H. Kissinger, 1982, p. 531).

This constitutes a revolution in our culture of governance, which would rather leave it to the second ranks to anticipate risks and take charge in situations that are not yet clear. There is a tendency, in effect, to try to "protect" the leader, as long as everything is not "perfectly clear".

An especially striking example here is that of Rudolph Giuliani, the Mayor of New York City at the time of the September 11 events. It is easy to draw a contrast between what happened in New York at that time and what occurred in New Orleans in 2005 (even if the two situations were very different in many respects). His convictions and his personal commitment on the front line of that inconceivable event were the cornerstone of the city's resilience. His advice was unambiguous: "*Have beliefs and communicate them. See things for yourself. Set an example. Prepare relentlessly. Underpromise and overdeliver. Don't assume a damn thing*" (Giuliani, 2002).

This assumes that the leader himself is mentally prepared to take an approach to intelligence and action that is more creative than procedural - yet our habits at times of emergency and crisis are usually just the opposite. With very little information available and even less of it verified, the leader must have the conviction and the vision to lead the community out of its initial disorientation, and to avoid the two pitfalls that are always present in extreme crises: bureaucratic inertia (where each organization waits till the crisis fits its codes and rules), and the general loss of nerve (not only within the public, but along the entire chain of command). It is only by spreading confidence that we can get through the ordeal, renew our energy, and come up with innovative plans and concrete roads to success.

The major challenge today is to choose and then prepare leaders so that the creative approach will prevail in the inevitable non-conventional crisis, whereas the entire organizational, administrative and institutional culture is in thrall to procedural thinking. In our cultures and in our selection processes, creative thinking is both punishing and punished. And this fundamental logic is not going to be turned around by devoting a few hours a year to "crisis management" seminars. This is a great challenge facing

leaders and organizations today. Most often, we settle the question by ducking it. Unfortunately, we won't be able to duck it much longer.

2.3.3. Strategic intelligence: "Rapid Reflection Forces"

The importance of standing back and assessing the situation objectively is even more important in this world of discontinuity than it is in specific crises. The reason is clear enough: because the strategic landscape has mutated, the conventional tactics and interpretations no longer work and are even counterproductive. We must tear ourselves away from them, which demands a very active and determined effort, and then construct new frameworks for understanding and coping with reality.

In operational terms, this means that our leaders must have at hand people who are familiar with chaos and who are given to thinking openly and to networking in unreadable situations. This is essential for overcoming the most severely pathological reactions to these new forms of crisis: mental blocks (the constant refrain is "in a crisis, you don't have time to think"); the "bunker mentality", with everyone holing up in his own little corner; treating problems in purely technical ways without looking closely at the positions; and above all, rushing blindly to the most counterproductive options.

The initiatives now underway to establish "Rapid Reflection Forces", for example in EDF (Electricité de France), need to be pursued urgently. We cannot continue to rely on the reflection that takes place in interoffice calls and corridor chats or, more broadly, outside the dedicated crisis management mechanisms - which are generally based on reactive thinking and not at all on deep questioning.

Along with the more "tactical" crisis teams, focused entirely on immediate operational responses, plans and logistics, we also need solid teams that will promptly undertake four broad lines of questioning, which will be deepened as the ordeal progresses:

- *What's happening?* By definition, we cannot immediately grasp all the essential issues at stake in a crisis that is entirely new, unclear and chaotic. The intelligence front involves a constant battle to anticipate, detect and clarify surprises, domino effects, escalation dynamics, and the general mutations that can be triggered.
- *What are the major pitfalls?* When the pressure of events becomes extreme, when panic spreads, when the bearings are lost, the very normal tendency is to become mired in the most counterproductive ruts. This happens with every major crisis. We must, then, immediately think about the major errors to avoid.
- *What networks do we need?* By definition, extreme crises strike at the system in ways that are hard to anticipate, and that may differ depending on the people concerned (Katrina and heat waves being set examples). At the same time, the new issues will have to be handled with new players. New maps will be needed both for diagnosis and for action, and they will have to be adjusted or remodelled through the ordeal.
- *What constructive initiatives can we propose?* The most important thing is not to pore over statistical lists or to compile all the information possible, but rather to try to discern one or a few critical initiatives that could introduce "a new ballgame", help us escape our crisis-induced mental ruts, and launch virtuous circles.

The kind of thinking that is needed here is the diametric opposite of procedural thinking. We must discriminate the essential factors, both in order to understand the crisis and to get out of it. With these Rapid Reflection Forces, what is important is not to draw up lists of data and fill out a series of pre-formatted tables, or to get tied up in hours of teleconferencing that will be increasingly technical and focus

on ever more detailed micromanagement. We are now far from the command-and-control techniques that are still promoted for handling crises at the top levels of our institutions.

In short, we must move beyond our habits in terms of decisional expertise, which is usually technical and scientific in nature and focused on micromanagement. We must introduce a breakthrough of methods at the desired levels - the business, the country, or group of countries - depending on the type of problem at hand. And this will be costly, because changing our guideposts is always an ordeal, even when they have consistently shown themselves to be inadequate.

2.3.4. Collective response and communication: the vital notion of empowerment

The years 1980-2000 were dominated by the idea of "Communication". We were told that to manage crises we had to give information to the players and to the public, as a democratic requirement. That in itself represented an important step forward. In fact, our tradition in times of emergency or catastrophe is rather that of "Command and Control", based on two sturdy pillars: the concentration of decision-making in a cloistered hierarchical structure, and the restriction of information held by that structure, in keeping with the military principles of the past.

But it was finally admitted that the key to success in multidimensional turbulence required other approaches. It called for bringing coherence to a great number of entities, on the basis of forward planning that was predetermined and bound by unquestionable operating rules. Such dynamics could not be achieved with an approach to governance that was restrictive, vertical, compartmentalized, and designed to minimize information.

We must now go much further. The idea of centralized management, even if open to large networks, is no longer in keeping with the demands of effective governance at a time of major discontinuity. In the face of situations that exceed the response capacities of a given government structure, when complexity overwhelms any specific organization, especially if it is vertically structured, when ignorance destabilizes organized expertise, when speed and hyperconnectivity explode the known rhythms and maps, when the loss of direction demands vital new foundations, we must look for other approaches. The new perspectives must combine several demands, starting with a fundamental rethinking of our governance paradigms.

Close networking among all stakeholders. This is needed to guarantee overall cohesion and the pooling of energies, indispensable to a swift and powerful response and to recovering from the inevitable mistaken paths and their unwanted effects. Creating capillarity in the system is seen as better than trying to erect illusory protective walls between each sector and each decision-making stage (as soon as a major crisis breaks out, all those walls become porous, and the best strategy is to use these flows, not to try to plug all the holes).

Involve all stakeholders at the core of the problem. It is essential to provide critical information and essential means to those who will have to cope with an abnormal situation on their own for some time; they must be brought decisively within the strategic loop; plans must be widely discussed with them, and their creativity and their initiative must be sought as inputs. The leadership, the structure in charge cannot of course abdicate its management responsibilities. This holds in particular for the public. The shocks that will accompany the new world of risk will demand operating modes that can no longer be based on our visions of a state, organizations or businesses contributing "turnkey solutions" to groups of people who have been immobilized or anaesthetized by "crisis communication" through the media.

We must be very clear about the gulf to be bridged. It is groups of people themselves who must find answers to the challenges they will face (Dumas-Séguier, 1997). If their creativity is not mobilized, the essential changes will never take place. Our motto, "Everything is under control, the government is

looking after you, don't do anything", needs to be radically overhauled. This approach has direct operational implications, for example when it comes to exercises: it is not enough to ask the people to be "bit players". Or when it comes to prevention, as was stressed in the report on the Quebec ice storm of 1998, which called for every citizen to have three days of supplies on hand at all times (1999). Here again, confidence is vital: "He had more confidence in us than we had in ourselves", it was said of Rudolph Giuliani, and that is why his city did not collapse.

Building the dynamics of mutual trust. The purpose here must be to consolidate the collective dynamics through initiatives that have been invented together, and this presupposes that everyone is clear about the issues and the difficulties. In particular, the logic according to which "the government draws up the plans, it informs the operators, and they comply" must no longer prevail. Katrina marked what will likely be a turning point in this regard, signalling the end of an era.

Of course, the principle of partnership is so obvious that it has become a cliché, and something that everyone pays lip service to. But we need to ask whether we have the cultural underpinnings to weave these partnerships, which demand sharing, trust and the willingness to explore together (without having the State let down its guard on the control front). For the time being, we still have a long way to go, regardless of the country.

Yet it is precisely this "new ballgame" in matters of governance that offers hope of progress in terms of basic cohesion, intelligent analysis, swift execution, and manoeuvring room in case of error - demands that were impossible to meet in our previous frameworks.

These considerations also have important consequences for the way we handle communications. Here again, new rules of the game must be introduced. We know that in any unprepared organization, the tendency on all sides is to "reassure" (and all the more firmly if there is no real certainty), and not to communicate any more once the problem appears to have escaped normal bounds. There is a great risk of falling into this trap during major crises which lay bare our ignorance and expose us to potential threats that are impossible to define or to decipher. The ideal breeding conditions will all be in place then for the pathology of information refusal. To counter this strong tendency, we must:

- Provide copious information, and do it early (not the minimum, and not when the chips are already down).
- Communicate about questions, not about certainties (which will come later).
- Communicate about processes, not about outcomes (the essential is the dynamics underway, the outcomes will only be known later).
- Be ready, of course, to communicate the certainties and the outcomes as soon as they are available, and even to report indicators and warning signals, if those signals are received before all the expected analytical results are in hand.

Quite apart from any recipe or checklist of behaviour, we must have acquired the strategic conviction that management and resolution of the crisis cannot be achieved without this shift in our fundamental approaches to involvement in communication. The problem is not to be "a bit more transparent" than before, but rather to have taken on board, in theory and in practice, the requirements of collective effort in a chaotic world - an environment that now demands dynamic linkages, fluidity and speed, shared information, and collective confidence.

We are far from the time when the decision maker could pretend to have the "right diagnostics" and could impose his views as official scientific expertise, as "truth", held exclusively by the authorities. Such positivism is now outdated. Sir Robert May, an eminent scientist who has contributed to the mathematical

modelling of complex systems and who is former Chief Scientific Adviser to the United Kingdom, made this point cogently at a European Union conference on Science and Governance: *In many important issues – both of safety and ethics ---science alone rarely gives unarguable answers. As Brecht wrote in his play The Life of Galileo: "The chief aim of science is not to open a door to infinite wisdom but to set a limit to infinite error".* (Sir Robert May, 2000)

We are also far from the time when a decision maker could claim to have the "right solutions", and therefore do without any involvement or information from other players. Kant's words seem increasingly pertinent: *"To profess to solve all problems and to answer all questions would be impudent boasting, and would argue such extravagant self-conceit as at once to forfeit all confidence."* (Immanuel Kant, *The Critique of Pure Reason).*

Here we touch upon the very core of our conceptions of governance. A painful task awaits us: we are going to have to turn upside down our practices and, still more, our basic visions as they relate to information, expertise, networking among stakeholders, and citizen involvement. The situation demands forceful input from politicians, not as a way of preserving their power but as an exercise in reinventing the collective conduct of human affairs. At a time when major and increasingly recurrent shocks are obliging us to question the great challenges of our history and the way we address them, we are condemned to make some major changes in our approach to empowering stakeholders, and hence to reinvent the function of leadership.

Time is pressing us on this front also. Already the big TV news networks are creating their own "situation room" for following a major crisis. The centre of gravity is shifting rapidly from the public sector, where the closed model has run its course, to other players, among which the media stand front and centre. But this is only one aspect, even if it is important and the most visible. Very shortly now the private sector will also be adopting "national response plans" to avoid being held hostage to ideas they judge outdated. Similarly, the myriad of players - NGOs, international institutions, local associations, web surfers - will soon be organizing, in ways that will surprise us, to contribute their own modes of response to grave situations. Either our big organizations will learn to live with these upheavals and reinvent their place, or they will be swept away. As the Chinese proverb tells us, "the helmsman must navigate with the waves, or they will swallow him up".

A perusal of any of the major reports on large-scale crises can shed some interesting light on these questions. Here are some of their more essential findings:

- Withholding information destroys managers' credibility (the BSE inquiry commission, Philips, 2001):

  1294. "Throughout the BSE story, the approach, to communication of risk was shaped by a consuming fear of provoking an irrational public scare. This applied not merely to the Government, but to advisory committees, to those responsible for the safety of medicines, to Chief Medical Officers and to the Meat and livestock Commission. All witnesses agreed that information should not be withheld from the public, but some spoke of the need to control the manner of its release. Mr Meldrum spoke of the desirability of releasing information in an orderly fashion[7] – of ensuring that the whole package of information was put together, taking care in the process not to "rock the boat".

  1295. Mr Brian Dickinson, who was a member of MAFF's Food Safety Group, put the matter in this way: "Given the strength of public debate on the matter at the time one was aware of slightly leaning into the wind. Yon could not just stand upright and give a totally impartial, objective view of what was the situation. There was a stronger danger of being misinterpreted out way rather than, the other, and we tended to make more reassuring sounding statements than might ideally have been said".

1296. We felt that this was an accurate description of the general approach to risk communication. We have seen that it provoked increasing scepticism and, on 20 March 1996, the reaction that the Government had been deceiving the public.

1297. In discussing this topic with us, Sir Robert May, Chief Scientific Adviser expressed the following view: "You can see the temptation on occasion to wish to hold the facts close so that you can have internal discussion and the formation of a consensus so that a simple message can be taken out into the market place. My view is strongly that that temptation must be resisted, and that the full messy process whereby scientific understanding is arrived at with all its problems has to be spilled out into the open".

1298. This view received strong support from representatives of the consumer organizations. They emphasized the need for open scientific debate. Ms Sheila McKechnie, the Director of the Consumers' Association, emphasized the need to develop a culture of trust. She commented that: "There is nothing more nanny is than withholding information from people on the ground that they may react irrationally to that information".

1299. She made the point that organizations build up credibility by openness. She expressed the hope that the Food Standards Agency would achieve this.

1300. Everyone agreed that the Government had a problem with credibility. A number of Government Ministers told us that they had lost credibility with the public, so that it was necessary to get independent experts to lend credibility to public pronouncements about risk. Mrs Bottomley spoke of the need for the public to receive information free of "political overtones". She told us that she did all that she could to promote the Chief Medical Officer as an independent expert who could be trusted by the nation.

1301. Our experience over this lengthy Inquiry has led us to the firm conclusion that a policy of openness is the correct approach. When responding to public or media demand for advice, the Government mast resist the temptation of attempting to appear to have all the answers m a situation of uncertainty. We believe that food -scares and vaccine scares thrive on a belief that the Government Is withholding information. If doubts are openly expressed and publicly explored, the public are capable of responding rationally and are more likely to accept reassurance and advice if and when if comes. We note, by way of example, that SEAC and MAAF have made public the fact that an investigation is being carried out into the question of whether BSE has passed into sheep. We do not understand that this has led to a boycott of lamb."

- The citizens must receive all the information necessary: (9-11, Commission Report, p. 318)

Once the South Tower was hit, civilians on upper floors wasted time ascending the stairs instead of searching for a clear path down, when stairwell A was at least partially passable. Although rooftop rescues had not been conclusively ruled out, civilians were not informed in fire drills that roof doors were locked, that rooftop areas were hazardous, and that no helicopter evacuation plan existed. In both towers, civilians who were able to reach the stairs and descend were also stymied by the deviations in the stairways and by smoke doors. This confusion delayed the evacuation of some and may have obstructed that of others. The Port Authority has acknowledged that in the future, tenants should be made aware of what conditions they will encounter during descent.

The NYPD 's 911 operators and FDNY dispatch were not adequately integrated into the emergency response. In several ways, the 911 system was not ready to cope with a major disaster. These operators and dispatchers were one of the only sources of information for individuals at and above the impact zone of the towers. The FDNY ordered both towers fully evacuated by 8 :57, but this guidance was not conveyed to 911 operators and FDNY dispatchers, who, for the next hour often continued to advise civilians not to self-evacuate, regardless of

whether they were above or below the impact zones. Nor were 911 operators or FDNY dispatchers advised that the rooftop rescues had been ruled out. This failure may have been harmful to civilians on the upper floors of the South Tower who called 911 and were not told that their only evacuation hope was to attempt to descend, not to ascend. In planning for future disasters, it is important to integrate those taking 911 calls into the emergency response team and to involve them in providing up-to-date information and assistance to the public.

- The citizens must be placed in a position of responsibility (9/11, p. 318):

  One clear lesson of September 11 is that individual civilians need to take responsibility for maximizing the probability that they will survive, should a disaster strike.

- The citizen, the private sector employee, is not the enemy but a key player in the rescue system (9/11, p. 317):

  The "first" first responders on 9/11, as in most catastrophes, were private sector civilians. Because 85 percent of our nation's critical infrastructure is controlled not by government but by the private sector, private-sector civilians are likely to be the first responders in any future catastrophes.

- Even in a mega-disaster, information is still a vital need (world flu pandemic, 1918):

  In 1918 the lies of the officials and of the press never allowed the terror to condense into the concrete. The public could trust nothing and so they knew nothing. So a terror seeped into the society that prevented one woman from caring for her sister, that prevented volunteers from bringing food to families too ill to feed themselves and who starved to death because of it, that prevented trained nurses from responding to most urgent calls for their services. The fear, not the disease, threatened to break the society apart. [...] Those in authority must retain the public's trust. The way to do it is to distort nothing, to put the best face on nothing, to try to manipulate no one. Lincoln said that first, and best. Leadership must make whatever horror exists concrete. Only then will people be able to break it apart ». (Barry, p. 461)

2.3.5. Crisis recovery: embedding the recovery issue upstream

Until very recently, writers and experts divided a crisis into successive and clearly defined phases: the pre-crisis (the prevention and surveillance phase), the crisis itself (the acute phase of response and mitigation), and the post-crisis phase (reconstruction or recovery). This last phase came "afterward" not only in the chronological sense, but also in the setting of priorities.

The recovery dimension was deemed less important, because prevention, which was easier in a more stable and predictable world, would reduce the incidence of crises. When prevention failed, the crisis would be "managed", and any "residual" problems could be left to the last phase. Once the critical moment was over, other, lighter and less visible teams would take charge of "returning to normal". This postponement was workable, mainly because the general setting of predictability served as a stabilizer, and things could return to their normal equilibrium.

Today, this scheme has been profoundly disrupted. Prevention encounters increasing difficulties in its role as the first and central line of defence. The handling of the crisis leaves behind it problems of sometimes considerable scope and duration - one has only to think of Chernobyl. The acute phase may itself come to be seen as "anecdotal", or at least it has lost its monopoly on attention and investment of effort. A hurricane is usually over in a few days (alert, evacuation, return), but the reconstruction of New Orleans after Katrina will be a decade-long affair. Crisis recovery becomes a central dimension (Guilhou, 2005). It must be addressed as soon as crisis management begins, and even in preparedness efforts (for example in the architecture of information and communication systems). Unless the conditions of system

recovery in a major crisis are carefully considered far in advance, the obstacles may well become insurmountable during the reconstruction phase that will have to be mounted after a severe event.

Leaders as well as operating personnel must be prepared to intervene decisively in areas that go far beyond simple "business recovery". The headaches facing the major utility operators in New Orleans today are perfect examples of the post-crisis problems that are bound to become more common: it is hard to move ahead with reconstruction if the big urban planning issues have not been decided; if the stakeholders in such choices are no longer around, but are not definitively gone (merely scattered around the continent); and if the authorities have trouble in coming to grips with the questions.

Moving beyond cases of this kind, we discover what is in fact a global problem: many parts of the planet are currently engaged in "crisis recovery", in the wake of natural disasters, technological disasters, wars, or combinations of all these elements. And the challenges are formidable on all fronts. While in the conventional phase of curative crisis treatment, stakeholders and their responsibilities are fairly clearly mapped out (although there will still be confusion, such as saturated and chaotic airports, in any severe event), the same cannot be said for this crisis recovery phase. Here we find that stakeholder interplay is much more confused, complex and uncoordinated. Everyone gets in on the act: NGOs (both the recognized, prestigious ones and the more opportunistic), private businesses, government agencies, Civil and Military Cooperation operators. A frequent problem is that everyone defines his own tasks, in the absence of guidance and frameworks set by governments or international institutions. With no one really in charge, recovery operations are likely to be excessive and to run on much too long (with a high risk of infiltration by profiteers and even criminals). Clearly, this dimension of crisis recovery deserves very careful thinking, without waiting for further experience to accumulate, which will only result in yet greater costs in terms of human lives, economic disruption, and loss of credibility.

We shall look here at some working hypotheses that have already been validated by field experience. But a word of warning is in order: the essence lies in preparedness. If we do not have strong convictions, based on managerial cultures adapted to a highly uncertain world, a world that is radically open and complex, none of these recommendations can really be implemented. The third chapter of this paper will attempt to clarify some of the indispensable steps that must be taken for making systems, organizations and individuals capable of moving effectively down these new avenues.

Some lessons from the 1999 storms in France

"In fact, when the first alarming signs arrived, no one seems to have foreseen how the scenario would escalate. This must surely serve as an indicator, within the administrative organization in place, that the reaction function was given too much weight at the expense of strategic thinking about the dynamics in play. Clearly it would be better for thinking on these two fronts to run in parallel.

No specialized unit - of the kind that could take a detached view in the midst of emergency contingencies, and that is no doubt too seldom provided for in organization charts - was in place or activated to carry out this task.

The prospect of multiple bifurcations in the evolution of systemic crises calls in effect for approaches to dealing with problems that will in themselves take better account of the unforeseen, or can even prepare for the unforeseen as such, and will distance themselves from the "response plans that are often too codified for open questioning". (Note below).

Of course it is still important to have catalogues of resources and automatic checklists. But in the face of the abnormal, of circumstances that will never fit completely into a pre-established framework, it is even more essential for people to learn how to respond collectively, and how to work efficiently in teams and in networks.

Where realities are constantly shifting and highly uncertain, where communication problems are critical, where the means of information and of command are lacking and conventional modes of action are inappropriate, managers must have been trained in advance, as far as possible, to intervene in this kind of rupture situation.

Source: Prime Minister's Office, *Evaluation des dispositifs de secours et d'intervention mis en œuvre à l'occasion des tempêtes des 26 et 28 décembre 1999*, Interim Report of the Interministerial Mission, July 2002

Note : Patrick Lagadec, *Ruptures créatrices*, éditions d'organisation, 2000

CHAPTER 3

STRATEGIC INITIATIVES

Summary
An understanding of the issues and a clear grasp of the cardinal rules of management are indispensable, but they are not sufficient. In these turbulent fields, where paralysis is so common, we must overcome two kinds of obstacles.

- The cultural block, which prevents us from a really serious examination of the actual challenges: we remain caught up in risk analysis systems and models for managing exposure and crises that are no longer in phase with current and coming realities.
- The managerial block, which prevents us from taking indispensable initiatives for making stakeholders capable of action in these new fields.

What we must do immediately is to give some strategic impetus to our systems, not only to overcome these blocks but to put ourselves in a position to be more creative, open and innovative. Our systems will then be able to cope with the challenges of our time, not through blind groping, but through intelligent, positive and determined action.

Previous sections introduced some "grammar" to help manage crises and navigate major discontinuities without falling systematically into deadly downward spirals. But the lessons of experience are tough and tenacious: managers, organizations, and cultures that are not prepared for these destabilizing and increasingly "barbarian" worlds will not be able to follow lines that we now know to be indispensable. It is not enough to declare the principles to be followed, as one would mechanically apply a technical checklist. We regularly find that the best guideposts and the best-conceived plans are immediately cast aside when a dangerous situation emerges. We find fierce resistance, especially at the highest levels, to putting the question on the agenda, to getting prepared, and to setting targets for progress. In other words, crisis management skills are not something one can pick up as the event unfolds.

It has long been recognized, in all countries and in all organizations, that there are two key lines of action. Without a transformation of intellectual and managerial cultures, it is vain to expect significant progress. Without a sound and determined effort at strategic and operational preparedness, it is vain to expect better performance.

But the real transformation has to do with the sharp break we must make, in moving from unbelievable resistance and passiveness in these fields to an unflagging determination to reform our organizations. To cite Sun Tzu again, we must recognize that we are dealing here with "vital questions". And as he said, the person who is not tested in these issues, who does not recognize the challenges and the way to deal with them, "will be defeated in every battle".

3.1. Overcoming cultural barriers

As long as "risk" is understood to mean a phenomenon of very low probability and of very limited severity - these two terms producing something that is "acceptable" and that needs only to be "explained" - risk managers will have no problem. They know how to make the calculations, and where to find sound advice for proper "communication" about the risks.

As long as "crisis" is understood to mean a somewhat delicate situation that demands particular resources, specific organizational rules, and suitable plans and checklists, crisis managers have no worries. They will ask for a list of possible risks and crises, and assign someone to draw up a response and a data

sheet. If they have the time, they may even propose an annual exercise to ensure that all the prepared responses are in working order. Once it is fitted into this framework, and the appropriate responses identified, the crisis can be considered to have been tamed and channelled, and it can be stamped "acceptable"

Yet it is quite another story when we try to get individuals and groups to work on new crises, on much more vital issues, for which by definition we do not have a full arsenal of desired responses. Let us be clear, it's a scary subject. The instinctive reaction will be to deny it. That reflex is deeply rooted and must be overcome.

3.1.1. Pavlovian denial

Anyone who ventures into this terrain for the first time is in for a surprise. Individuals and organizations usually react very negatively to any idea of preparedness, questioning, or information, particularly about this delicate terrain. We must be aware of these defence mechanisms and their power of paralysis. They revolve mainly around the following factors:

- The feeling that a manager cannot waste time on these matters: "If he is the manager, it's because he has the answers".
- The feeling that the subject is not serious: "If there is no codified response that can be readily modelled and can then be subcontracted to technical specialists, then the approach must not be scientific".
- Incomprehension: "A manager is there to give answers, not to ask questions".
- Anxiety: "A manager is not a risk taker: it's his job to apply tried and true procedures, not to invent new ones as he goes along".
- The feeling of illegitimacy: asking management teams to prepare for non-conventional situations is often seen as unacceptable, because it runs contrary to all the rules of the game through which these team members rose to the senior posts they now hold.

Decision-makers will be at least unconsciously aware of a discrepancy, and they may not be able to repress the urge to flee. As we have seen, a crisis demands above all a creative profile, not the more common one of a manager who is good at running machines and using standard techniques without inquiring too *far* into the purposes, the meanings, or the players to be involved. Such a profile is not generally a central requirement in recruitment and in promotion, and could even be grounds for rejection. Many managers thus have a vague feeling that these critical questions involve venturing into unknown, hostile and dangerous territory for which they do not have the required bearings, and which is therefore "to be avoided."

Naturally, these difficulties can be overcome, but they do exist and are the uncontested rule in organizations that are not prepared. They are the most remarkable allies of crisis.

Resistance expresses itself in many ways: "we already have plans"; "they already impose useless exercises on us"; "we don't have the time"; "it will cost too much"; "it's not a priority"; "it's much too sensitive, you're going to open a Pandora's box"; "we can't get the managers involved, there's too much conflict at the top"; "surely you're not going to tell me I'm not doing my job right!"; "if a dicey situation comes up I know what to do: call the emergency unit".

All these defensive reflexes need to be transformed if we are to develop a collective capacity for asking questions about the uncertainties, a capacity to examine possible options and to accept the need for individual and collective preparedness.

3.1.2. Deeply rooted resistance

The problem here goes far beyond simple "resistance to change". It is much more visceral, and it is rooted in a combination of three lines of defence:

The intellectual block. Anything that is unprecedented, exceptional, non-linear is instinctively rejected. It is as if we were still the disciples of the naturalists of the 18th-century:

> *"Causes which result in effects which are rare, violent and sudden must not affect us, they are not part of the ordinary process of Nature. Our causes and reasons are the effects that occur each day, movements that follow one another, effects that are continually renewed and endlessly repeated." (Buffon, 1793)*

Uriel Rosenthal, one of the pioneers of crisis study, finds that this tradition persists and stymies our approach to crises:

> *"Scientists feel uncomfortable with phenomena that seem beyond the scope of the neatly crafted theories which have been developed on the basis of normal circumstances and events. Crises seem to be in total opposition to the very foundations of modern social science." (Rosenthal, 1989, p. 5).*

In these circumstances, non-conventional problems are likely to remain orphans, and anyone who takes an interest in them will have trouble being taken "seriously".

The managerial block. Ralph Stacey, a professor of strategic management, claims that:

> *"At least 90% of the content of textbooks on strategic management concentrates on the relatively easy part of the management task, namely the running of the organizational machine in as surprise-free way as possible [...]. On the contrary, the real management task involves tackling exceptions quickly and without pressure, coping with and even using unpredictability, clashing counter-cultures. The real task is about managing instability, irregularity, difference and disorder." (Stacey, 1996, p. 19-20).*

The fact is that, when flung into these situations, managers are highly likely to become confused or paralyzed. And any invitation to prepare for the abnormal will be taken as a groundless, illegitimate and even provocative suggestion.

The psychological block. This, without doubt, is the most potent block. A crisis event can effectively strip the manager of all his sense of direction, all his frames of reference, and everything that justifies his social position (responsibility, respectability, power, identity), and expose him to the risk of floundering or of being driven to extremes. Clearly this is profoundly destabilizing and destructuring for somebody who is unprepared. In the words of Sun Tzu: "Is it not at this point that half a step in the wrong direction could put me thousands of miles away?"

A psychoanalytical analysis is in order here, given the powerful and often irrepressible emotions that surface among both individuals and groups in critical situations - even a planned exercise regularly evokes the same type of destabilizations. Experience suggests a careful reading of these lines from the psychoanalyst Nicole Fabre, writing about Descartes, if we want to understand the depth of this resistance:

> *"His thoughts are a whole. His work also. There is no crack through which it can be attacked. There are no voids. His belief is that there is no vacuum in nature. As such his controversy with vacuum, in particular with Pascal's "quick-silver experiments" and his refusal to consider the*

> *existence of any vacuum, is so surprising in this man who referred to experiment whenever possible, to the extent that it is impossible not to see in this refusal the expression of his personality or his mode of reasoning. So much so, that I must speak of this refusal in terms of resistance. If Descartes resisted the notion of vacuum so completely, if the notion of emptiness was so inconceivable and shocking to him, it must be that to him the notion of vacuum symbolized nothingness or chaos. It represents a risk of disorder. Descartes' use of rationality to reject this concept so vigorously, manifests his fear of nothingness (death?) and the fear of losing his hold on the solidity of a system which he values because it presents not the slightest chink."(Fabre, 2004, p. 91).*

These handicaps would not be such cause for concern if we were steadily pushing back the frontiers of uncertainty, and if ignorance were slowly receding. However, as we have seen above, this is not the case.

3.1.3. A cultural shift

When it comes to exposure and crises, our perspective must be literally up-ended. Issues that were previously regarded as "marginal" now stand centre stage and must be treated as such. The "known world" no longer exists, that comfortable world where we pursued our plans and activities against recognized measures of excellence, and where any discrete, marginal uncertainties were only worthy of attention if they were already covered by validated theories backed with robust statistical evidence, stripped of all excess.

Our perspective must not be simply that of limiting habitual resistance. We must now acquire the intellectual and cultural facility to move about creatively in a highly unstable and opaque world. It is true that for the time being we have no roadmap available, and so we must construct one.

Rupture. The concepts that we excluded from our intellectual working domain must now be accepted as new frontiers for urgent exploration: discontinuity, irreversibility, escalation to extremes, volatility, sudden reversals, crystallization, resonance. That domain must embrace all disciplines, and it must be transdisciplinary. These lines of thinking and action must no longer be taboo, and the response dynamics must no longer be those of the bunker, the Maginot line, or the gravity dam. The response must be on a par with today's challenges, and must therefore combine openness, speed, fluidity, complexity and connectivity, based on a solid foundation of conviction, determination, values and identity. It must have maximum flexibility for invention outside the frameworks of the past, yet - and here is an essential contradiction - this will require at the same time certain fixed points of conviction that can stand up to confusion and chaos. All of this raises a number of daunting questions.

3.2. Preparedness for both conventional and chaotic crises

Our systems need to be energized in two ways. First, they must be made capable of dealing at least with relatively circumscribed crises, for they already constitute the first level of difficulty that our systems are not always able to handle. The second is much more ambitious, but goes to the core of the impending challenge: to launch initiatives that will unleash dynamics whereby we can learn to cope on the terrain in which we will now be engaged - that of the chaotic.

3.2.1. Conventional crises: making up for lost time

We have known for the last decade what we have to do to prepare our managers, teams and networks for conventional crises. And we have known how to do it. Only one factor has been typically lacking - the willingness to engage in the process.

Some initiatives are already being taken to boost our know-how and thereby protect against the risk of systemic failure.

Getting the leadership to think about crisis issues. The first step is to place the problem of crises on decision-makers' agenda. The idea is to open the field to collective work on these issues, something that is rare. The most effective way is to have the leader meet with his inner circle in a strategic preparation seminar where they can role-play participant involvement, analyze concrete cases, provide operational reference points, and get used to the idea that this is a field of responsibility for the organization.

Feedback. The feedback or "lessons learned" process is the exact opposite of the oblivion syndrome. We don't close the books on a crisis once the costs are tallied and the bottom line drawn. On the contrary, we need to review the episode in a constructive spirit in order to identify and understand the sequences and linkages revealed in the way the affair was handled. The experience will be treated as an opportunity for collective progress, not as something to be filed away and forgotten (and still less as an occasion for finger-pointing). Moreover, engaging immediately in this type of reflection can help the healing process. At least it demonstrates an intent to be serious about the conduct of procedures: this is often essential when no one is able to come up with "miracle" solutions. Any feedback exercise is sensitive, of course, especially for those who are not prepared for it. The purpose is precisely to work, following the best learning principles, so that feedback gradually becomes possible, and increasingly substantive and useful for all.

Simulation exercises. A group that is not properly trained will find it very difficult to take charge in a crisis situation, and to innovate effectively in unprecedented circumstances. Continuous training is needed, then, not for dealing with well-codified events (the "fire drill" ritual) but rather for coping with destabilizing surprises. The approach should be that of simulation: it is irresponsible to rely solely on actual experience in collective training, especially if that experience is promptly excluded from the feedback session (the fear of prosecution flowing from these analyses is often an inhibiting factor). The simulations must be followed by rigorous debriefings, which are often neglected or rejected once the "course certificates" have been handed out. Yet they are essential for any kind of progress. Of course, steps must be taken to ensure that the exercise is conducted effectively and regularly: as in other fields, simply posting a notice may not be enough.

Specific skills upgrading. It is essential to provide special training for certain key figures: leaders who will have a key policy role as the crisis unfolds; crisis unit managers, who will have to guide extremely complex systems with great and often unknown perverse effects; spokespersons; experts; members of the "strategic reflection units" that were stressed earlier as so important. The general approach is to be content with "media training", but we must go far beyond that. There are in fact whole new areas of management that need to be explored and shared with those interested, and this cannot be done by devoting a few hours every five years to the task.

Learning from others. Because crises unfold within complex networks, it is important to extend the learning process to partners outside the organization concerned: meetings, feedback sessions, exercises, vulnerability analysis can no longer be conducted strictly in-house. The circle of stakeholders must be constantly expanded. This should be started as soon as the organization feels itself slightly less exposed, when fears have abated somewhat, and when internal confidence has been restored. And the organization must also have reached the threshold where it no longer believes it can manage a crisis alone.

These approaches can contribute a great deal. Experience suggests some conditions for ensuring their success:

Personal involvement by leaders. It is in the nature of crises that they strike at the fundamental elements of the organization's existence. Nothing serious can be done without the demonstrated and steady

involvement of the people at the very top. Every staff member will feel much more committed to the learning process if the "boss" is personally engaged. The minister, the president, the director must show that he himself is committed to this policy. He must, in particular, reassure all those who agree to innovate in poorly understood fields; show appreciation for the most promising achievements and performers; have ad hoc means for tracking the issue; provide methodological support for those who agree to become involved. It is, then, a question of demonstrating real conviction, not just issuing formal statements.

An overall work programme. The organization should shy away from showy, one-off operations that will exhaust energy, good will and budgets. There should be a steady progression over time, gradually involving greater numbers of players: first the central core, and then, via concentric circles, an ever larger network. It is also important to play on all registers of learning: an institution that is not properly trained cannot handle multiple exercises or painful feedback sessions unless it has, at the same time, effective support in terms of methodology and know-how.

Process control. Managers must know at all times who is doing what, and they should keep a critical eye on the methods used and the results obtained. This presupposes feedback on the learning process itself. To be shunned are all those habitual exercises that serve no known purpose, and the types of debriefings (also common) that turn out to be protocol-obsessed meetings rather than opportunities for in-depth exchange between all partners. These demands call for establishment of a project management unit that is specifically alert to the methodological difficulties and has close links to the leadership.

3.2.2. Managing in a chaotic world: promoting "out-of-the-box" dynamics

The principles of intervention are the same as those discussed above for conventional crises, but the starting point is different: here we begin where the previous preparations left off. Work will focus on the following essential dimensions:

The inconceivable: the goal must be to mobilize ourselves around the dimension of the inconceivable, through open prior questioning, simulation and feedback. We will work with others in training to this dimension, and will throw the field wide open to thinking creatively without waiting until we have solid information and sound responses. The cardinal principle is this: not to foresee the unforeseeable but to train ourselves to cope with it.

In a simulation exercise, for example, simply asking a group to produce a scenario that is a priori "inconceivable" is itself very constructive and even liberating. We will very quickly discover the unspoken taboos of the group in question, which will at last become explicit. And in this way we may discover crises that are already brewing.

Training will focus on sharpening the capacity to spot unconventional crises. This means:

- Develop peripheral vision to watch for ruptures at the margins.
- Identify the "sleeping variables" that can abruptly erupt: what was once seen as normal suddenly becomes unacceptable, and what was considered totally impossible becomes the norm.
- Look for unconventional sources of information and make contact with people outside the usual circles: by definition, extreme events do not come through the normal channels, which means that we must have other sightlines and other reflexes.
- Have people pool their sensations, their intuitions and their surprises (and not only their sure data), and have mechanisms for compiling and sharing these intuitions (which are difficult to classify in the pre-established format): focus on converging intuitions rather than on scrupulously documented technical "proof".

- Look carefully at visions, identities, stances and linkages, to determine what is still pertinent, what is no longer pertinent, and what needs to be constructed.

Here is another concrete path, which illustrates the learning philosophy to be followed. If we want to sharpen the strategic perspicacity of a group in charge of "flu pandemic" planning, for example, we will find it very useful to go beyond conventional exercises based on a model of this kind: "We are going to give you a flu pandemic scenario; we are going to see if you know how to apply the national plan for coping with the problems which the facilitation group will provide you with during the day". Instead, we will apply something non-conventional, the "Red Team Approach":

> *"Suppose you were a secret agent for the 'forces of flu', trying to spark a pandemic. How would you attack the system? What would you do to get around the established lines of defence? And then, what would you do to induce paralysis, conflict, contradictions, and failures in the system and its defence tools? What traps would you set for its leaders? What would you do to strip them of their credibility and their legitimacy as quickly as possible?"*

Experience shows that coming at the issue from this angle brings us more directly to the goal, and that participants in the exercise will suddenly become much more creative than under the old system, which was entirely focused on measuring the gap between what the official plans call for and what the players do.

The ability to discriminate. In many organizations inured to emergencies and conventional crises, the key to their reaction strategy is to assemble all the information possible, and to fill in all the tables, which will be more elaborate the more complex is the situation. The higher the stakes, the more exhaustive this work must be. Yet the feeling of security that these "hot air machines" generate can quickly become a trap. What is needed is a completely opposite approach, one that places the ability to discriminate at the core of the intellectual and operational approach. What are the two or three essential facts, factors or dimensions that must be sought out, constructed, or implemented? As one big international organization told an expert who was being fielded to find an exit after a terrible genocide: "Get out there, but whatever you do don't write reports. Send us just one idea, if you can find it".

Training is needed to come to grips with this new, counterintuitive and rather disconcerting approach. When you have put together a 600-page plan, when you apply the plan, and when you ask everyone involved to fill out statistical tables in the midst of a crisis, failure is just around the corner. But at least all this effort will protect you - you can hide behind all this feverish activity and defend yourself with a mountain of documents in case of an ex-post audit. On the other hand, to be discriminating means you have to wrestle with reality and come up, not with averages, but with what is really crucial, i.e. to discern what can be done that will be effective. Our conventional exercises, when they are organized and carried out, never prepare us for such vital dynamics.

Invention is the mother of initiative. We know that large-scale crises cause organizations to retreat into the models of the past which, even if they have fully demonstrated their uselessness, at least offer the comfort of familiarity, even in failure. If there is to be a fiasco, at least it won't be too much of a surprise. And the method followed will itself provide a kind of "cover". This is a pitfall to be avoided.

We must accept the fact that, in mutating situations, only a mutating intellectual approach will show us fruitful openings.

The usual reflex is to wait until we can see our way clearly, to have a solid overall model before undertaking any novel or in any way risky operation. This view is no longer appropriate. The blinding speed of change and the certain danger of standing still force us to take risks and make bold moves, together with other players.

Progress will be achieved through specific acts by which we can learn, experiment, and open networks. When the battlefield is so vast and so complex, the appropriate rule of thumb is to move forward in stages that are well thought out, clearly defined, but bold. By following a specifically defined project that we can see through to success, we can learn things and, just as important, persuade ourselves that we can make progress, that action is not suicidal but, on the contrary, productive. The targeted nature of the initiatives is also crucial, because time is short and does not allow for elaborate plans.

There may be the occasion for feedback, simulations or public hearings. After the 2001 anthrax attacks in the United States, for example, and the thousands of false alarms in Europe, one of the authors suggested to postal operators that they host an international feedback session to consider some operational initiatives for the future. The president of the French postal service, *La Poste*, immediately agreed to the idea, and in 2002 key representatives of about thirty operators met in Paris to share their experiences and to set up an inter-network alert and information system (Lagadec-Rosenthal, 2003; Lagadec-Michel-Kerjan, 2006). Similarly, with EDF support, international debriefing missions were conducted on the Quebec ice storm (Lagadec, 1999, 2000); on the lessons from the 2003 SARS outbreak in Toronto, relating to a potential pandemic (Lagadec-Dab, 2003); and more recently on the lessons from Katrina for big network operators (P. Lagadec, E. Lagadec, X. Guilhou, 2006).

Education. Until these issues are covered during initial training it will be very difficult to insert them on the agenda for decision-makers. Because the subject is so foreign to their frame of reference, they will be too fearful of the risks to consider and construct creative solutions. The real question, though, is this: how must we equip our future managers and citizens so that they can find new bearings, new anchor points for conviction, new tools of action in a world fraught with crisis and discontinuity? (Fremont, 2004). And this, not in a stable world where the disruptions to be "managed" are rare and isolated, but in a world where the dynamics of risk, of crisis and of discontinuity become the very matrix of evolution (Bellet, 2004).

3.2.3. Concrete achievements: some operational examples

i). Seminars for leaders

How should we go about enlisting leaders and their inner circles in training for handling extreme events? This is a question that the OECD might want to consider for consolidating leadership circles at a time when the risk of major crises is ever present.

Our institutions are accustomed to large-scale "command and control" exercises that are complex and time-consuming (and that deal only with logistics, coordination and communication problems), and often no one is very sure how to address the more unfathomable challenges that now face us at times of crisis.

More specific details relating to working frameworks and know-how could be useful to the reader. The following pages propose some methodological guidelines that are quite practical and that the authors have used in the field, with the managers of large institutions, the executive committees of major companies, the officials of big cities, etc.

Very specifically, this is what we give them as working guidelines and procedures. This scheme has demonstrated its usefulness on many occasions in recent years.

PREVENTION AND MANAGEMENT OF NON-CONVENTIONAL CRISES OPERATIONAL INITIATIVES

General framework

- In the turbulent and structurally unstable world that is coming to be, every large organization has the duty to prepare itself for situations of very high turbulence. These non-conventional situations, typified by systemic breakdowns and resonance phenomena, call for powerful and coherent mobilization, for strategic options, and for innovative fundamental stances that cannot be improvised. It is imperative, then, to ensure that leaders and their teams are fully prepared.
- Preparedness for managing these situations goes far beyond what was covered in the "crisis management" or "crisis communication" seminars of 10 or 20 years ago. It involves essentially preparing ourselves, individually and collectively, for situations that pose major surprises that are "inconceivable".
- Experience shows unambiguously that for optimal success in such training the seminars should have between 15 and 60 participants. Recognizing that leaders' agendas are crowded, the seminar is kept to a very short timeframe - an afternoon, an evening, a morning.
- The key objective of the seminar is to build a team or network of individuals who are thoroughly committed over the long haul to taking initiatives for progress in this difficult field. The stress is not on producing rules, checklists or recipes, but on questioning and on the capacity to engage in such questioning jointly, on direct and thorough involvement in simulations that will test the capacity for high-speed construction of response stances, of organizational modes adapted to the least expected situations. The crises of today nearly always depart from the anticipated scripts, and we must train ourselves to react strategically in such situations, which always take us by surprise, to the point where organizations are regularly paralyzed by the non-conventional nature of the situation.
- The seminar will employ a number of approaches:
  - Simulation exercises: this is essential when we want to prepare for surprises.
  - Case studies: this provides a useful perspective, and involves video films of remarkable pedagogical effect.
  - Demonstration of acquired knowledge both in diagnosing problems and the pitfalls to avoid and, naturally, in choosing the most appropriate response (once again with input from participants, video footage from exceptionally experienced leaders).
  - Finally, the seminar sets aside time for work on operational approaches to building, over time, ever-stronger collective skills in these fields, which are undergoing sharp mutations.
- The strategic operation must involve the most senior leader or leaders directly. This is what Rudolph Giuliani did in New York, and it allowed him to set and hold his course in the storm. We are now into the realm of politics in its true sense (the capacity to bring collective meaning and direction to difficult circumstances in which all the markers are lost), and not that of emergency techniques.
- Generally speaking, organizations, institutions and managers appreciate the urgency of initiatives on these issues. They can be planned, even from the outset, with an international dimension.
- In some cases, it will be advisable to interview the leaders before the seminar. In all cases, the operation is prepared in very close collaboration with the responsible manager within the institution or the team concerned.

Schedule of proceedings

Day 1

16:45 Opening session: remarks by the leader

17:00-19:00 In-depth work of listening and putting in perspective: experience, convictions, questions from participants on extreme crises.

19:00-19:45 Filling in the picture.

- The theatre of operations: from emergencies and conventional crises to the new emerging crises - specific cases.
- Strategic pitfalls

21:00-23:00 Case studies and firsthand accounts (films)

Day 2

8:30-11:45 Simulation: strategic work on "unthinkable" scenarios, constructed by the participants themselves. Scenario building session, work on the scenarios in simulation of what the leader's strategic support team should do, analysis and proposals from participants.

12:00-12:30 Filling in the picture.

- The essential grammar of crisis management and crisis recovery.

12:30-13:15 Work on the actions to take for upgrading skills, using examples of innovative initiatives.

13:15 End of seminar

ii) Debriefing

To ensure increasingly effective capacities to anticipate and to react, it is essential at all times to seek out the best information on potential risks, new challenges, and ways of responding to them, and the best organization to put in place. This is another approach that the OECD could follow in order to take advantage of experience and to prepare its members for dealing with the most complex situations.

Over the last decade, the authors have worked with the most progressive agencies and businesses to conduct debriefing operations in the wake of major crises, selected for their non-conventional nature.

With Electricité de France, for example, we went on to study: the ice storms in Quebec (January 1998), which destroyed most of the province's power grid, and this was directly useful in dealing with the great storms of December 1999 in Europe; the SARS crisis in Toronto (2003), from the perspective of a flu pandemic; the Katrina crisis, from the perspective of problems and responsibilities with critical infrastructure.

With support from the French Postal Service and PostEurope, we conducted an international debriefing operation in the wake of the anthrax crisis of autumn 2001.

INTERNATIONAL DEBRIEFING IN THE WAKE OF THE ANTHRAX CRISIS CONCRETE APPROACHES

- Clarification of the project and its objectives, with a close advisor to the President (April 2002):
  - Compile the most useful lessons on this crisis and its management, internationally.
  - Establish an international network allowing immediate contact among operators, at the CEO level, in case of an international crisis.
- Set up a core team of two persons[5] to guide the overall project: an advisor to the President, and an outside specialist. Establish a small group of international experts[6] that would guarantee a more collegial approach to monitoring the operation.
- Meeting with the "crisis" managers of various large postal operators that had been at the forefront in dealing with the crisis: Royal Mail, USPS, etc. (May-June 2002):
  - Listen to their experience and the lessons learned.
  - Request their participation in an international seminar on the subject in Paris.
  - Ask them for an in-depth issues paper for publication in a major international scientific journal.
- Widespread distribution of a questionnaire to operators, to collect broader information: experience, lessons, innovative proposals and ideas.
- Meeting with the responsible managers of European and other postal organizations to discuss postal security issues. Outline of a proposed international network.
- A seminar in Paris, in November 2002, attended by some 30 postal operators:
  - first-hand accounts from major operators: lessons from the Anthrax crisis.
  - discussion of a proposed international network.
- Establishment of the network, at the European level.
- Publication: a special issue of the Journal of Contingencies and Crisis Management[7], with in-depth contributions from postal services recounting and reflecting upon the anthrax crisis.
- Learning-oriented films featuring two key persons who were in charge of the anthrax crisis within La Poste (France) and the Royal Mail group (UK)[8].

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[5] Martin Hagenbourger, technical advisor to the Office of the President; Patrick Lagadec.

[6] Erwann Michel-Kerjan in the USA, who was primarily in charge of relations with the USPS; Arjen Boin and Werner Overdijk in the Netherlands

[7] Special issue "Anthrax and Beyond", Guest Editors Patrick Lagadec and Uriel Rosenthal, *Journal of Contingencies and Crisis Management*, Volume 11, Number 3, 2003

[8] Christopher Babbs (Former Head of Network, Royal Mail): "Facing the Unknown – Lessons from the Anthrax Threat to Royal Mail (Oct 01- Feb 02) ", talking to Patrick Lagadec, June 2004.

Martin Hagenbourger (Technical advisor to the Office of the President of LA POSTE) : "*La crise de l'Anthrax*", interview with Patrick Lagadec, March 2004

Generally speaking, to go beyond specific cases, the essential principles of operational intervention are these:

1. As soon as a non-conventional crisis emerges, examine the usefulness of a debriefing exercise with the institution's managers.
2. If the idea is confirmed, consider the best time to conduct the debriefing: neither too early (when the desired participants are entirely preoccupied in managing the situation) nor too late (when those persons may have forgotten about the event, or have already had too many requests).
3. Putting together the field work: identify the key persons to be met with; consider the best way of involving them in the initiative, from an information-sharing perspective and not simply that of an interview.
4. Conduct the debriefing exercise in the field: this information gathering must include an essential dimension of exchange, of support, of feedback from the investigation team. If possible, films will be made of the interviews and reports, as ideal teaching aids[9].
5. A written report for operational and strategic use. The intent is to identify new issues, new principles for guiding crisis management in our time.
6. Information seminars and strategic brainstorming sessions following the mission.

[9] Examples: Roy A. Williams (Director of Aviation): "Louis Armstrong New Orleans International Airport and Katrina: Working out of the book", talking to Patrick Lagadec, firsthand accounts collected by the debriefing mission sponsored by EDF (Pierre Béroux, *Directeur du contrôle des risques*) on major vital networks and Katrina, 19-26 February 2006.

Rodney D. CHARD (Executive Vice President Whitney Holding Corporation; Executive Vice President and Division Executive, Operations and Technology, Whitney National Bank in New Orleans): "Whitney Bank and Katrina – Rebuilding technology infrastructure", talking to Patrick Lagadec, firsthand accounts collected by the debriefing mission sponsored by EDF (Pierre Béroux, *Directeur du contrôle des risques*) on major vital networks and Katrina, 19-26 February 2006.

CONCLUSION

Therefore the skilful leader subdues the enemy's troops without any fighting; he captures their cities without laying siege to them; he overthrows their kingdom without lengthy operations in the field. With his forces intact he will dispute the mastery of the Empire, and thus, without losing a man, his triumph will be complete (Sun Tzu, page 15).

This is the major risk we face today: to keep trotting out the line that "everything is under control", "don't be pessimistic and so don't ask any questions", while demanding that the citizens give up the idea of "zero risk", while complaining constantly about the "unhealthy litigiousness" of our societies.

If we cannot mount strong, determined and open initiatives, we risk falling prey to the most punishing kind of bunker mentality. Threats and crises are not going to wait. And if we stumble from fiasco to fiasco, our energies and our confidence will collapse, reinforcing the fears of officials and the public alike and leading to a deadly downward spiral.

We must therefore learn to take new initiatives, through very concrete and practical approaches, and we have just indicated the operational routes that have already been found useful in the field. The first requirement, in most cases, is not to hold a press conference or issue a white paper but rather to engage effectively with stakeholders in precise initiatives for learning, for overcoming obstacles, for convincing, and for transforming denial into positive determination.

"Failure is not an option". On all fronts - intellectual, managerial, governance, conviction - we must now acquire the skills and the openness to address the new vulnerability issues. We must venture resolutely to these new frontiers, in order to understand them and to improve our skills, in terms of vision, philosophies and tools - in order to better master our destiny in these particularly turbulent times.

ANNEX 1

LARGE FINANCIAL INSTITUTIONS AND UNCONVENTIONAL CRISES

The issue

Major financial institutions play a critical role in the recovery process in the wake of a crisis. That role is even more important in what is becoming a chaotic environment: astronomical direct costs, cascading damages that are impossible to assess, beneficiaries that are impossible to reach, public institutions and essential operators that are profoundly destabilized.

Preparedness is the vital key

Inadequate preparedness aggravates considerably the risks and costs, and even the possibility, of recovering from a crisis.

Given the paralyzing nature of any extreme phenomenon, the financial institutions that must help are at great risk of finding themselves profoundly de-structured in a post-accident world, and too destabilized to make use of the funds entrusted to them. Thus, financial institutions are likely to be overwhelmed by the storm, to be required to "pay" ineffectively and, in the end, to be the ultimate scapegoat.

It is vital, then, for big financial and insurance institutions to develop and apply policies that are up to these challenges, so that they can play their role when needed and act as an essential lever in recognizing and managing the risk of unthinkable crises.

Two imperatives

Financial institutions must consider action on two crucial fronts:

1. Assuring their own preparedness for off-the-scale crises (in addition to what they already do in connection with conventional crises).
2. Close and sustained attention to the preparedness of all those who look to the financial organizations for support, in particular for insurance and reinsurance.

Simple operating rules

Internally, to insure real competence

Large financial institutions need to set up an in-house group, reporting to the highest level, with the tasks of:

- Strategic thinking and active surveillance on the problem of unconventional crises, using new concepts and tools such as those indicated in this report.
- In addition to the usual technical documentation, apply this strategic thinking to policymaking, with particular attention to the rules of engagement before, during and after highly destabilizing situations.

- Start work on developing the non-conventional operating tools for engagement that will be needed when entirely new problems emerge.

Externally, rules of audit for all requests for coverage

To make our big systems more resilient and more robust, and to restore relevance to their general financial support activity, which is so essential in cases of major disaster, large financial institutions must now tie their support and their insurance coverage to some cardinal requirements of a strategic nature that go well beyond the conventional rules of risk management.

Following are some of the questions that must become the initial benchmarks to ensure that the problem of off-the-scale risks and crises is really taken in hand at the highest level of the organization seeking coverage:

- When and how do the senior leadership and its teams participate in strategic preparation sessions, seminars and simulations on major risks of non-conventional crises?
- What specific instances of debriefing on extreme situation have there been in the last two years?
- Beyond crisis plans and conventional exercises (the quality of which must be assessed), what benchmarks appropriate to off-the-scale events are already available and specifically applied?
- How does the institution give effect to the lessons drawn from these efforts?
- Is the institution also working on preparedness with all its essential partners?
- In a dynamic and forward-looking manner, what are the principles and guidelines for the next two years in terms of acquiring knowledge and know-how?
- Is this programme officially in the hands of a specialist reporting to senior management?

It will be important to ensure that any item missing from this checklist of essential requirements is taken directly into account in assessing the institution in question.

ANNEX 2

TWO EXAMPLES OF CRISES FROM THE YEARS 1980-2000[10]

Case No. 1: The Sandoz fire and pollution of the Rhine, November 1986

During the night of November 1, 1986, a fire broke out in one of the Sandoz warehouses in Schweitzerhalle, not far from Base, Switzerland. The warehouse contained 1351 tonnes of chemicals, intended mainly for agricultural use. Firefighters brought the blaze under control in the early hours of the morning. The warning issued to local people, to stay indoors and close the windows, was lifted around 7 a.m.. The incident was over and the "emergency" had been dealt with.

But a few days later, a crisis erupted: the Rhine had been polluted. At least some of the water used to put out the fire had drained back into the river. Laden with toxic chemicals, it struck at the very artery of Europe, tainting this "symbol of symbols" all the way to its mouth. "The death of the Rhine" made headlines in the European and international press. This was no longer an emergency, but a real crisis.

This was not a sudden plunge into crisis - and therein, perhaps, lay the trap. There was certainly a tremendous fire, but on November 1, 1986 everyone was congratulating the firefighters for the excellent job they had done. There were no victims. A press conference on November 4 evoked no awkward questions. Everyone was relieved.

While the incident seemed to have passed, the crisis took over the field by stealth. It revealed itself only four days later, after the emergency efforts had been called off. Yet it soon engulfed the entire theatre of operations. It was a further shock to the city of Basel, which had been aroused in the middle of the night and had put up with sirens (silent since the last war), a terrible odour that blanketed part of the city, and orders and counterorders to close schools, etc. It created a lingering fear that manifested itself in many ways: a cloud fell over the intimate relationship between the people and "their" chemical industry.

Within Sandoz, they were blinded by their initial success. The incident was over and it was now just a question of settling damages. Pollution? - "Come on, we're talking about eels!" So no one took the situation firmly in hand. When the field is abandoned in this way, through inaction or partial action, everything feeds the crisis. This was the case with the lists of chemicals that might have found their way into the Rhine with the water from the fire hoses, which the company made public. But those lists were not complete, and the company was soon accused of deliberately trying to conceal the most dangerous products.

When it seemed that everything was over, the world press arrived. The wildest rumours began to flourish, in ground that was particularly well prepared. The headlines read like a Wagnerian opera title: "Death of the Rhine". The government mobilized on a scale never before seen: the cantonal parliament was convened, the Grand Council of Basel held a minute of silence, the two federal houses of parliament met (which was unprecedented for this type of problem). The crisis was about to gain the upper hand. And as we know from experience the louder the questioning becomes the quicker the frames of reference disappear. Would the company be able to extricate itself from this surreal and indeed suicidal void?

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[10] Extracts from : Patrick Lagadec, *Apprendre à gérer les crises, Société vulnérable – Acteurs responsables*, Les Editions d'Organisation, 1994.

Fortunately, the alarm was sounded, as is often the case, by someone who knew the system well but was something of an outsider. Edgar Fasel had just arrived at Sandoz, with the job of creating a new external relations department that was to become operational in early 1987. In the course of his previous career, with another industrial concern and with the Swiss government, he had already had to deal with serious crises.

> *Edgar Fasel: "On Friday the 14th, I realized that communication had broken down completely. I was very frank with the CEO, Mr. Moret: "what we're doing is completely stupid; everyone is running after everyone else; we're all at the end of our rope; we're aggressive, bad losers, bad players". He told me, "Yes, you're right, something's got to be done." He called a management meeting for Sunday afternoon. For my part, I brought together a team of some 20 people to inject some new blood into the affair. On the 21st, we called together the international press. The essential thing, as I saw it, was not the third list that we were going to give them, but the fact that the president would be there to run the meeting. In fact, it went very well - Mr. Moret was superb. For our part, we stressed that we have always told people that we knew. They could accuse us of not knowing everything all the time, but they couldn't call us liars.*
>
> *The personnel and equipment infrastructure for handling information and external relations at Basel was very weak at the time of the fire. We set up a telephone hotline to respond to the press, with a team of eight, then twelve men and women. The rules were: don't leave any question unanswered, don't keep bothering the specialists, who have to get their work done, bring them out only for the press conferences, don't put every technical question to them (they are not communicators and that isn't what they were trained for). This phone service, which operated 24 hours a day, received some 200 calls a day for 30 days and coped with 130 requests for individual interviews, as well as the presence of 17 TV crews. The Japanese were interested in the problem, and of course the Americans never fail to show up.*
>
> *But our lovely organization came too late. The problems kept multiplying: around November 20, a Zurich ecological institute announced that theoretically, "dioxin could have been released by the flames." That information spread like wildfire. When the experts finally produced their analysis - negative findings - the media had lost interest in the subject. That episode really killed us.*
>
> *In short, no matter how properly and skilfully we conducted ourselves, the image remained fixed. The information professionals had decided we were liars, that we understood nothing, that we were grasping at straws, that we were not on top of anything. Local people vented their feelings - they were fed up with technology: Chernobyl, the Challenger, local debates over nuclear power, and now all this from the city's chemical industry. There was no real way to fix the situation.*
>
> *All we could do was hunker down and wait until people were ready to listen to us and to believe us again. We made use of that time to refine our organization and prepare our messages.*
>
> *Basically, in terms of information, we were setting out to make up for lost time - because Sandoz had got through its first century successfully, of course, but without any true communication culture."*[11]

This reorientation prevented Sandoz from going under, clinging desperately to outmoded attitudes. It turned things around and emerged stronger from a situation that, however, stood in sharp contrast with Bhopal: the pollution of the Rhine was not as bad as had been feared, and there was no disaster. Above all,

[11] Taken from P. Lagadec, *States of Emergency*, 1988. Interview with Edgar Fasel, 127-131.

the company was able to take bold initiatives in the wake of the episode. First, in terms of prevention, it invested heavily in safety: crisis management is by no means a question of communication alone. Sandoz also set up an independent scientific institute to monitor water quality in the Rhine. It established a fund of 40 million French francs (some 6 million US dollars) to support research for ecological cleanup of the Rhine, it called for tenders, and it sponsored 34 teams - the projects were selected by an independent committee of experts. From an isolated incident there emerged a global plan that the people involved took very seriously: this is the kind of transparent initiative that best promotes healing.

Also noteworthy was the analytical work and investigation that Edgar Fasel, in particular, undertook in an effort to share the lessons from this ordeal. We should take seriously his key point: "If a leader tackles a crisis as if he were the keeper of a fortress, he is lost." And we should heed his lucid argument and his full encouragement for drawing tough lessons: "There are very few accidents (significant progress has been made in the safety field) but when they occur, they are very serious. We have to knuckle down, knowing that the ground is constantly shifting. The conclusions we draw today would have seemed completely outrageous and unacceptable just five years ago: people would have said we were alarmists! The experience of recent years has not entirely swept away old-fashioned ideas, but at least it has shown that some conventional ideas are no longer entirely satisfactory."[12]

Case No. 2. Johnson & Johnson and criminal tampering with Tylenol, autumn 1982

This is a textbook case: the rare capacity to decipher instantly a signal of very low intensity; the ability to sound the alarm and mobilize quickly; taking charge resolutely at all levels - operational, strategic, ethical - when there is a large-scale threat.[13]

On September 30, 1982, the director of public relations for the Johnson & Johnson group was informed by a member of his department of a strange phone call from a *Chicago Tribune* journalist. The journalist had asked basic questions about Tylenol (a very popular painkiller, with sales of $400 million a year), about Johnson & Johnson, and about its relationship with its subsidiary, McNeil Consumer Products Company (which distributed the product). The conversation left the employee with an uneasy feeling. The director called the reporter back and asked what was going on. He was told the reporter was investigating a Chicago doctor's suspicion that there was a link between Tylenol and a recent death.

The public relations director called his boss, the corporate vice-president for public relations, who in turn immediately called his superior, the president of J&J. The vice-president's first thought was that there had been some kind of problem at a plant, and he hoped it was all a mistake. The president called his executives together. But all this handful of executives knew was that a rumour circulating in Chicago was linking a J&J product with death. *Death . . . when health was what Johnson & Johnson was all about!*

The president lost no time: he told the vice-president of the executive committee and the public relations director that a helicopter was standing by to fly them immediately to McNeil headquarters in Pennsylvania, not far from J&J headquarters in New Jersey.

The president wasted no words, and told his vice-president, "Take charge." Ninety minutes later the two men were in action.

The selection of the crisis manager was not a random choice: the vice-president knew Chicago, and was a former boss of McNeil. He immediately introduced the communication dimension into the team. They followed the basic requirement: gather the best possible information about the event. A crisis unit

[12] Interview with Edgar Fasel. See also "Sandoz s'engage pour un Rhin propre", Sandoz, brochure, summer 1988.

[13] Steven Fink, op. cit. p. 204-206 ; Dieudonnée ten Berge, 1990, p. 25-26.

was set up, with seven people, and a clearly defined mission focused on two key questions: "How do we protect consumers?" and "How do we save the product?. The president stayed at the helm.

A remarkable reflex phase, extended immediately by decisive interventions:

- alert the public via the media
- alert the medical community
- take the product off the shelves in the Chicago area
- coordinate with government agencies
- pull all advertising for the product
- offer a reward of $100,000 for information on the perpetrators of the contamination
- inspect millions of Tylenol capsules in J&J offices and in regional offices of government agencies

Yet everyone was still in the dark: where did the problem lie? Failure or sabotage? The threat remained random and impossible to pin down. The people with whom action had to be coordinated, especially the FBI, were strangers to corporate culture. The company's image was about to be destroyed: "J&J, from cradle to grave". Staff were attacked, even in their private life: "Your father works for a firm that kills people!"

The light began to dawn shortly afterwards, with the discovery in Chicago stores of two more Tylenol capsules tainted with cyanide. These lots came from different sources, both in terms of their manufacture and their routing. So it was sabotage in the retail stores, and this was absolutely confirmed on October 2, when a ransom demand was received.

Faced with the unknown (which is always the most destabilizing), J&J was at least able to fall back on a very sound internal code that constituted a kind of anchor in the storm. This was the "credo" established forty years earlier by the son of the founder, who was president from 1938 to 1963. Its wording was particularly advanced for its time:

> *"Institutions, both public and private, exist because the people want them, believe in them, or at least are willing to tolerate them. The day has passed when business was a private matter – if it ever really was. In a business society, every act of business has social consequences and may arouse public interest. Every time business hires, builds, sells, or buys, it is acting for the...people as well as for itself, and it must be prepared to accept full responsibility for its acts." [Translator's note: taken from the J&J web site]*

The company had always made great efforts to give life to this credo. Meetings organized on the subject drew more than 4000 employees. The president himself chaired every meeting. In 1975, a redrafting of the credo was considered at the highest level, and it was modified slightly. The actions taken immediately after the onset of the crisis were guided by this credo: consumer safety and welfare were the first priorities, and everything else was secondary. The company's response was consistent with the first line of the credo: "We believe our first responsibility is to the doctors, nurses and patients, to mothers, and all others who use our products and services."

J&J insisted that this anchor was of great help to everyone when important decisions had to be taken in uncharted territory. It was a light at the end of the tunnel, a fixed reference point, but also extremely useful in terms of legitimacy. It provided the basis for the immediate reflex to protect the public: "act quickly and responsibly". It also underlay the communication policy: "tell what we know, as soon as we

know it". And it provided immediate guidance for dealing with the outside world: "ask the public to trust us".

The news that new lots had been deliberately poisoned and the discovery that the packaging was vulnerable led the company to take some far-reaching decisions:

- It withdrew the product everywhere.
- It destroyed the entire stock.
- It set up a phone line to listen to and answer public concerns.
- It trained employees to receive calls (of which there were 30,000 over the next month).

But the company did not stop at a general recall. Tylenol was a very popular product and a profitable one, and the company did everything in its power not to leave its fate to the extortionists. It was the packaging alone that was at fault: over the short term, the market would have to be steered to an alternative format for the product (in tablets rather than capsules), and over the medium term, the product would be reintroduced in better-protected capsules.

This policy was supported by strong action at communication and marketing:

- Advertising: the company placed full-page ads in major American newspapers on October 12, offering to exchange bottles of capsules for tablets.
- It established a direct phone line for consumers within the first week of the crisis. Some 136,000 calls were received with 11 days following announcement of the service; and 210,000 calls within three weeks (specialized firms were hired to handle these calls, to the relief of J&J).
- 60-second spots were aired in October and November featuring the medical director announcing that the bottles would soon be available again with new packaging.
- The company's top executives made statements over the major TV networks.
- Other employees were trained to respond to interviews.
- A four-minute video was prepared for TV, showing how the tamper-proof packaging was made.
- Every letter addressed to J&J received an answer: some 3000 inquiries were handled in the course of a month and a half.

Nor was the internal front overlooked. The president took action immediately to let everyone know that a comeback was possible, and to dispel any defeatism: "We're coming back", he proclaimed. There was also ample evidence of solidarity: J&J stood by its subsidiary, providing financial support and finding work for temporarily laid-off employees.

Beyond that, to give greater effect to its social responsibility, the company worked with the government and with Congress to promote new product packaging standards. It scheduled visits to more than 160 members of Congress in Washington to lobby for new legislation that would make it a crime to tamper with consumer products.

The company's management of the entire crisis demonstrated its capacity for initiative, based on its founding values. It did so again when the product returned to the market on November 11: the bottles of Tylenol now on the shelves were tamper-proofed with triple seals. The company was thus the first to comply with the new standards prescribed by the FDA (Food and Drug Administration). Once again, J&J demonstrated its operational capacities:

- Another big communication campaign: more than 2250 members of the corporate sales force (including J&J subsidiaries) were mobilized to make presentations to the medical community (70 per cent of all users take Tylenol on the advice of a physician). One million such presentations were made before the end of 1982; 450,000 e-mail messages were sent out to doctors and distributors.
- Another large-scale marketing campaign: discount coupons worth $2.50 were distributed through newspapers and via a toll-free number where people could request them. Discounts of up to 25% were offered to retailers in order to win back shelf space. And a new advertising campaign was prepared.

Worldwide media interest in the case was enormous, producing 80,000 press clippings, 2000 telephone calls, hundreds of hours of radio and television reports - . "the most widely covered issue since the Vietnam war". And the company did not limit itself to providing basic information: answering some of the calls required extensive research, for example to provide details on delivery routings (for one investigative journalist pursuing a particular hypothesis), or examining this or that sabotage theory.

Matters came dangerously close to the precipice when a journalist asked about the presence of cyanide on company plants. The company responded, off-the-cuff, that it had none of that poison within its walls, and so the problem could not be an internal one. But then it was discovered, to the company's horror, that there was indeed some cyanide in one of the company's research labs. If the press were to get its hands on that information, it could destroy J&J's credibility completely, for it would have been caught lying. If the press were to publish such information, the general climate would inevitably condemn the company: in fact, the cyanide in the laboratory had absolutely no connection to the case, but in the midst of a crisis, who would be able to counter that hasty public verdict? The journalist was contacted, the response was corrected, and he was asked to use discretion, on understandable grounds. A second journalist learned of the report, and then a third. On each occasion the company took the same care in dealing with these scrupulous investigators who, after realizing that there was no real story involved, agreed to the embargo. The information was released later, at a time when the risk that it would be misconstrued could be better controlled.

Equally careful attention was paid to internal communication and to communication with shareholders (who are kept informed about the handling of the crisis). As a senior company executive put it:

> *"Our most valuable constituents are the employees. We realized that from day one. In all, we produced four different videotaped special reports on the Tylenol crisis. We had an internal video network for our 165 companies and divisions, and we sent them cassettes. The tapes, lasting more than three hours, covered all important aspects of the evolving story and treated at length the president's teleconferences and [his appearance on an American TV programme]. The president and the CEO co-signed a letter that went to every employee in the United States, explaining the crisis, what the company was doing, and the steps we were going to take. The employee response was impressive. The crisis knitted our employees together, and bonded them as never before in the company's history. Of course, you'd rather wish it hadn't happened at all. But because the company responded the way it did, the employees were very proud of the organization." (ten Berge, 1990, p. 25)*

The crisis left seven people dead. 31 million bottles of Tylenol were recalled, at a cost of $100 million. Within a few months, the market was 98% restored. This outcome can be explained by three fundamental strategic capacities:

1. The absolutely remarkable reflex capacity in the chain of command, despite the weakness of the initial signal; the ability to mobilize all the essential ranks, up to the president; the president's capacity to put the system in position for active response. All of this in 90 minutes.

2. The establishment of clear rules of response, deeply anchored in the company's core values: stop the deaths; discover the cause; help the victims; be transparent, and behave with humility.
3. Masterful conduct on all fronts: overall coherence, specific communications for each target audience, mobilization of all personnel, including retired workers, tracking public opinion, decisive intervention by the president, large-scale media campaign.

The conduct of this crisis can be summed up in three words: competence (both strategic and tactical), responsibility (both external and internal), and dignity. And to consolidate the overall dynamics, there was a real effort at learning, targeted at managers, the bulk of the staff (including retirees), and outside groups and institutions.

ANNEX 3

AN EXAMPLE OF AN OFF-THE-SCALE CRISIS: KATRINA, AUGUST 29-SEPTEMBER 2005[14]

Hurricane Katrina struck the Gulf of Mexico coastline on August 29, 2005. It is estimated to have caused 1300 deaths: it was the costliest hurricane in terms of human lives since 1928 (when the Okeechobee hurricane killed 2500 people), and the third worst in American history (Galveston, 1900, 8000 deaths)[15]. An essential point is that it presented two facets:

- A major hurricane.
- A hybrid disaster, that was both natural and technological, following the breach of the levees and the flooding of New Orleans, which caught nearly everyone off-guard.[16]

1. The hurricane, a familiar event

- The southeastern coast of the United States is accustomed to hurricanes (even though Louisiana is located on the outer rim of the core hurricane zone, and was thus not on the screen for initial awareness and preparations).
- The organization and tools for weather forecasting and hurricane warnings are remarkably effective.
- Civil Defence systems are also dependable, at least in Florida, and people know how to react.
- There had been extreme storms in the past, including category-5 hurricanes like Andrew (1992) and Camille (1969).
- Katrina was forecast several days in advance. It achieved category-5 status over the Gulf of Mexico, and was then downgraded to level 4 and then to level 3 by the time it hit the coast. Its path had been very closely predicted to within about 10 km.

2. Katrina broke many records

- *Unusual parameters.* Katrina was not a category-5 hurricane, but there are other parameters besides wind speed that must be taken into account, and these are not successfully reflected in the Saffir-Simpson scale. The size of the storm, which was more than twice as big as Andrew (400 km versus 200), the general configuration of the coastline, with Louisiana forming a bottleneck

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[14] Xavier Guilhou (XAG), Patrick Lagadec (Ecole Polytechnique), Erwan Lagadec (Harvard University) : "Les crises hors cadres et les grands réseaux vitaux – Katrina. Faits marquants, pistes de réflexion". Mission de retour d'expérience, La Nouvelle Orléans (Louisiana), Gulfport (Mississippi), 19-25 février 2006 ; Washington, DC, 13-15 mars 2006, EDF, Direction des Risques Groupe, avril 2006. See at www.patricklagadec.net

[15] Most of these figures are derived from interviews and written sources such as Robert P. Hartwig, Senior Vice President & Chief Economist, Insurance Information Institute, New York, December 7, 2005. http://www.disasterinformation.org/disaster2/facts/presentation/

[16] This despite the fact that this risk had been remarkably well documented and had been the object of a simulation exercise based on an almost identical scenario in 2004. There is a big gap between the hypotheses and their effective internalization in organizations.

that helped raise water levels; the fact that the hurricane hit at high tide. Depending on the place, the water rose between 4 and 10 metres above normal, compared with an average rise of 5 metres in the case of Andrew. Moreover, Katrina was followed on September 24 by another hurricane, Rita, which added its destructive effects to those of its predecessor.

- *Widespread and severe impact.* The area affected is as big as Great Britain, or 50% of France: the landscape lay devastated, and the most severely hit areas were totally wiped out. Between 250,000 and 300,000 houses[17] were severely damaged or destroyed; 110,000 in New Orleans alone, of which 30,000 to 50,000 were irreparable. Tourist facilities built of concrete were flattened.

- *A multi-faceted phenomenon.* The most serious problem, especially for New Orleans, was not the wind itself but the persistent flooding that followed the breach of the levees (most of the city having been built in a basin below the level of Lake Pontchartrain and the Mississippi River). In New Orleans, nearly 110,000 dwellings, or 50% of the city's housing stock, were covered by more than 1.2 m of water, some of them by more than 3 m. The flooded area amounted to seven or eight Manhattan Islands.

- *Losses and costs.* The overall cost of Katrina is estimated at $200 billion. It wreaked havoc of all kinds, exceeding any other catastrophe in world history in terms of economic losses. With respect to insured losses, the cost of Katrina amounts to some $40 billion, or double that of the "record" hurricane Andrew in 1992, more than six times that of hurricane Hugo (1989), and twice the cost of the terrorist attacks of September 11, 2001. In the three weeks following Katrina, Congress released more than $75 billion, as much as the combined total for the September 11 events, the four big hurricanes of 2004, and hurricane Andrew.

- *Social devastation.* 1.5 million people were evacuated from the region[18], reducing the number of available workers by more than 930,000. Apart from the shrunken workforce, reconstruction is still being hampered by the colossal problem of debris[19], the destruction of utility systems, the dissolution of social bonds, public health threats (severe water pollution from chemicals), the soaring cost of materials, and high transportation costs reflecting the spike in fuel prices. Before Katrina, the Parish of Orleans had 15,000 active businesses: only 1880 were back in operation as of February 8, 2006.

3. Major networks: massive destruction, chain effects

- *Destruction of offshore oil facilities.* Around 75% of the offshore oil platforms (3050 out of 4000) were located in the path of Katrina and of Rita, the two successive hurricanes: 114 were destroyed (50 by Katrina), 69 were damaged, 19 were set adrift, and three sank. It was however the older and less productive ones that were most seriously affected, and in the end this limited the impact on production. Immediately after Katrina, 91% of oil production and 83% of gas output had ceased; three weeks later, the figures were only 55% and 34%, respectively. Yet at a time of heavy pressure on oil prices, and a volatile economy, the least disruptions can have very severe consequences.

- *Destruction of vital networks.* 80% to 90% of vital utilities and services were destroyed in less than three hours (electricity, water, pumping). Earlier hurricanes had caused power cuts for perhaps 250,000 people: the figure for Katrina was over four times as high, at 1.1 million,

[17] This exceeds the destruction in Bosnia-Herzegovina or the Southeast Asia tsunami.

[18] 1.5 million people were displaced, as many as in a major civil war.

[19] The same type of major surprise found at the World Trade Center in September 2001.

including 800,000 in Louisiana. Telephone service was almost nonexistent, with more than 3 million lines out of commission, and with damage on a scale that could not be immediately repaired (indeed repairs took a very long time because of the persistent flooding); many switching centres were inaccessible and often irreparable, since water is a mortal enemy of electric and electronic installations.

- *The "clotting" effect.* The loss of electric power makes all other networks inoperable; the collapse of communications impedes normal operation of all response mechanisms; the loss of fuel, combined with the destruction of much of the transportation network, also brings a host of obstacles, and to these must be added problems of security. The second hurricane, Rita, provided another shock, causing recovery work to be suspended and reconstruction materials to be withdrawn to safety.

4. An unstable setting

- *The natural setting.* Seven of the ten most costly hurricanes in the history of the United States occurred in the course of just over one year, between August 2004 and October 2005. Five of the eleven most devastating catastrophes in history hit the United States over the last four years: there were as many major hurricanes (categories 3, 4 and 5) between 2000 and 2005 as during the entire decade of the 1990s. The frequency of such events, then, seems to be spiralling, and they are no longer extremely rare incidents of the "once in a hundred years" type. In other words, naïve relativism - "there have always been disasters" and "modern man has simply lost his memory of them" - does not stand up to any analysis, and especially that of insurers and reinsurers.
- *The social setting.* Our societies are intersected by fault lines that make for heavily contrasting social contexts, which can give rise to fragmented, extreme, unstable reactions that are difficult to comprehend. These fractures had already been identified in New Orleans. Henry Quarantelli, founder of the Disaster Research Center, had stressed prior to 2005 that land use patterns in some places in the United States no longer met the normal conditions assumed by institutional frameworks. In case of a disaster, he added, this would open the way to reactions that would not fit the normal paradigms ("no leaving your post, no violence") in terms of disaster sociology.
- *The institutional and organizational setting.* The shock of terrorism has provoked a fixation on 9/11-type attacks[20]. In one fell swoop, the status, the resources and the teams of FEMA were swept swiftly into the maelstrom, demonstrating that in just a few years a government agency could lose much of its effective capabilities[21]. As Katrina showed, the price to be paid for this impoverishment becomes brutally obvious under the test of reality. More generally - and this problem is not confined to the United States - because of budgetary cutbacks, and an increasingly short-term focus, our societies have been losing the crisis management capacities they had in the 1990s. Finally and most importantly, the priority given to "checklist"-type approaches at the

[20] Despite the warning of the experts. A non-conventional crisis preparedness official in New York City confided, in July 2004, that what he feared above all was not another terrorist attack but a category-3 hurricane over New York (interview video footage).

[21] As if echoing this idea, Mike Walker, former Deputy Director of FEMA, was quoted as follows in the Washington Times of 13 September 2005: "Two years ago, in a lecture at the Naval Postgraduate School... I told students that FEMA was not capable of adequately responding to a major hurricane, let alone a catastrophic terrorist attack. My comments were based on an assessment that morale at FEMA was then the worst since the agency was created. The very people the nation depended on to help out during our time of greatest need were being demoralized by an indifferent, inexperienced leadership that neither understood emergency management nor had the skills to ensure the agency had the resources to meet its all-hazards mission."

> expense of strategic questioning, the refusal to tackle issues for which we do not have "sure" answers on file, (in the name of "operational pragmatism" that can hardly conceal the mediocrity of the visions and the means deployed) have provoked a fundamental backwardness in our approaches to risks and crises. Outmoded paradigms, and the lack of vision, of strategic thinking and of preparedness: our systems are most often "one war behind" in terms of our major vulnerabilities. Because of this, it is not enough to complain about the shortcomings of the people on the front lines (even when they are obvious, as in the case of Katrina) or to call for simple organizational tinkering. Fundamental failures require fundamental changes.

Katrina thus represented an off-the-scale phenomenon and it struck in a context that, before the disaster, already betrayed many fundamental misalignments. These are now common features of the new world of crisis.

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