



Policy Brief

Risk Governance Deficits

Analysis, illustration and
recommendations

Abbreviations used in the text:

BSE	Bovine Spongiform Encephalopathy
CFC	Chlorofluorocarbon
CO ₂	Carbon Dioxide
EU	European Union
HIV / AIDS	Human Immunodeficiency Virus / Acquired Immuno Deficiency Syndrome
IRGC	International Risk Governance Council
IT	Information Technology
LLR	Low-Level Radioactive
MMR	Measles, Mumps and Rubella
OSHA	Occupational Safety and Health Administration
RIA	Regulatory Impact Assessment
UK	United Kingdom
US	United States

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Cover picture:
Satellite image of Hurricane Katrina approaching the Gulf Coast of the United States.

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The IRGC Risk Governance Deficits:

CLUSTER A: Assessing and understanding risks

- A1 Early warning systems
- A2 Factual knowledge about risks
- A3 Perceptions of risk, including their determinants and consequences
- A4 Stakeholder involvement
- A5 Evaluating the acceptability of the risk
- A6 Misrepresenting information about risk
- A7 Understanding complex systems
- A8 Recognising fundamental or rapid changes in systems
- A9 The use of formal models
- A10 Assessing potential surprises

CLUSTER B: Managing risks

- B1 Responding to early warnings
- B2 Designing effective risk management strategies
- B3 Considering a reasonable range of risk management options
- B4 Designing efficient and equitable risk management policies
- B5 Implementing and enforcing risk management decisions
- B6 Anticipating side effects of risk management
- B7 Reconciling time horizons
- B8 Balancing transparency and confidentiality
- B9 Organisational capacity
- B10 Dealing with dispersed responsibilities
- B11 Dealing with commons problems and externalities
- B12 Managing conflicts of interests, beliefs, values and ideologies
- B13 Acting in the face of the unexpected

The International Risk Governance Council (IRGC) defines **risk governance** as the identification, assessment, management and communication of risks in a broad context. It includes the totality of actors, rules, conventions, processes and mechanisms concerned with how relevant risk information is collected, analysed and communicated, and how and by whom risk management decisions are taken.

IRGC's approach to risk governance was originally described in its white paper "Risk Governance – Towards an Integrative Approach", published in 2005. The IRGC risk governance framework offers those concerned with risk assessment and management a methodology for handling risk that is comprehensive and sensitive to context. It has subsequently been adopted by many organisations as the basis for their own risk analysis and as a tool to help develop appropriate management strategies.

In subsequent work on specific risk issues a key question has been: What are the deficits in risk governance processes and structures that need improvement? As more subject-specific projects have been undertaken and completed, this question has arisen ever more frequently. IRGC's own work therefore laid the foundation for a project which has sought to further explore the general concept of risk governance deficits.

Deficits can be found throughout the risk governance process and in most sectors, from when unsafe forms of food are unintentionally introduced, to ineffective and costly regulation in fisheries management. With change can come great opportunities, including technical and scientific innovations that can bring improvements to health, society and the environment. But change also brings risks, and these risks require governance if we are to maximise the associated opportunities.

In November 2009, IRGC published the report "**Risk Governance Deficits: An analysis and illustration of the most common deficits in risk governance**". The report identifies and describes a number of common and recurring deficits in risk governance processes and structures.

With this policy brief, IRGC aims to make its research and insights on risk governance deficits available to anyone responsible for risk governance processes, or elements thereof, whether in government, industry, academia, research organisations or the non-profit sector. We hope readers will use the concept of risk governance deficits to identify significant gaps or limitations in the risk governance structures and processes in their own organisations. With this knowledge, it is hoped they may then be able to develop steps to remedy the identified deficits.



IRGC's recent emphasis on deficits is intended to pinpoint very specific elements of risk governance where processes often fail. The analysis enables risk decision-makers in government and industry to understand the causes of deficits in risk governance processes and how those deficits exacerbate risk.

IRGC defines **risk governance deficits** as deficiencies (where elements are lacking) or failures (where actions are not taken or prove unsuccessful) in risk governance structures and processes. Deficits hinder fair and efficient risk governance and increase the severity and cost of a risk event.

The deficits identified and described by IRGC have recurred over time and have affected risk governance in many types of organisations and for numerous different kinds of risks. Systemic risks, on which IRGC focusses its attention, are defined as those risks that affect the functionality of the systems upon which society depends. They have impacts beyond their geographic and sectoral origins and may change the "rules of the game" by which society operates. Systemic risks provide a greater challenge for risk governance and, thus, greater scope for the occurrence of deficits.

The potential consequences of risk governance deficits can be severe in terms of human life, health, the environment, financial systems, the economy and social and political institutions. There may be a failure to trigger necessary action, which may be costly in terms of lives, property or assets lost; or, the complete opposite – an over-reaction or inefficient action which is costly in terms of wasted resources. The consequences of deficits can also be particularly harmful to the development of new technologies, where they can lead to a suffocation of innovation (through over-zealous regulation) or to unintended consequences (through failing to account for secondary impacts). Other possible adverse outcomes include the loss of public trust in those responsible for assessing and managing risk or an unfair (or inequitable) distribution of risks and benefits.

IRGC has identified a series of risk governance deficits that are grouped into two broad clusters:

- Deficits in **cluster A** relate to the assessment and understanding of risks, including the collection and development of knowledge. They affect the decisions that will be made with regard to risk management.
- Deficits in **cluster B** relate to the management of risks; the acceptance of responsibility and the taking of action in order to reduce, mitigate or avoid the risk.

The first two sections of this policy brief outline the identified risk governance deficits and are an abridged version of the full report. These sections also include a few key questions that may assist decision-makers in the evaluation of their own organisation's risk governance capability.

The third section provides general recommendations for how organisations can use the risk governance deficits to improve their assessment and management of existing and emerging risks.

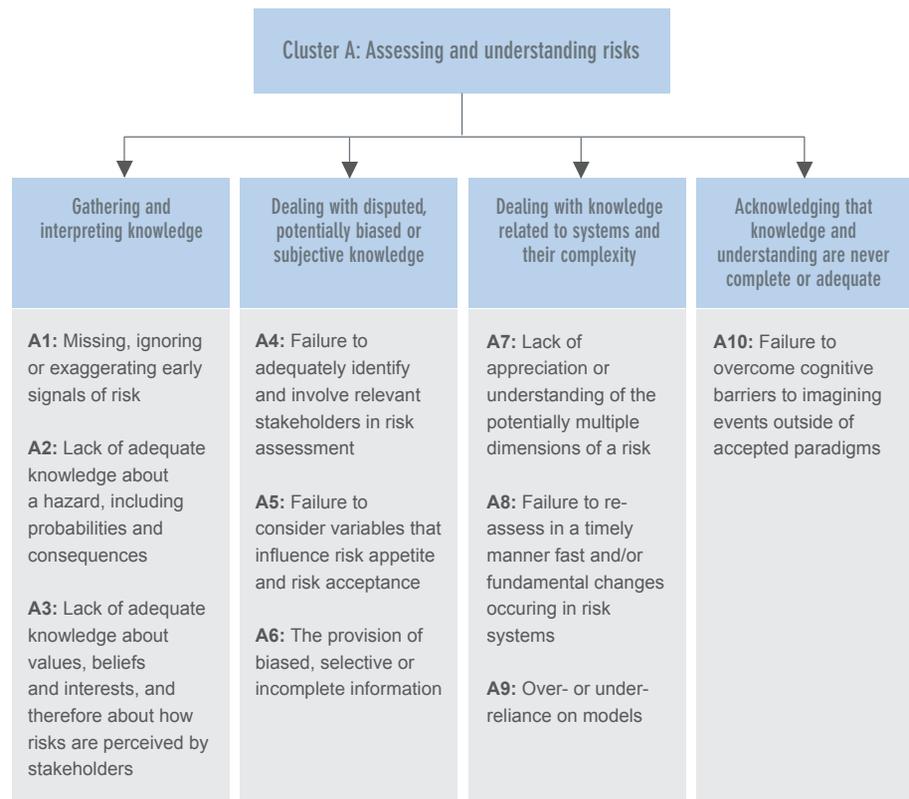
We hope you find this policy brief valuable and welcome your comments via governance@irgc.org

I Cluster A: Assessing and understanding risks

People today are often dissatisfied with how they are able to deal with the complexity, uncertainty and ambiguity which are prevalent in our interconnected and fast-changing world. Scientific discovery and technological innovation are occurring at a rapid pace and global trade, travel and electronic communication are creating increasingly interconnected and interdependent networks. As a result, almost all sectors of society and the economy may be affected by systemic risks, in which entire systems may be endangered by apparently minor or far-away events. Events with a low probability of occurrence, but with very severe consequences, can be particularly destabilising. The consequences of a risk or a risk management decision can therefore be difficult to predict. Under such circumstances, risk assessment becomes much more challenging and a number of important knowledge-related governance deficits can occur.

IRGC has identified ten deficits relating to assessing and understanding risks which can be grouped into four areas as illustrated in Figure 1 below and discussed further in the following sections.

Figure 1: Deficits relating to assessing and understanding risks



1.1 Gathering and interpreting knowledge

The first challenge with a new or newly re-emerging risk is early and effective detection. The **failure to detect early signals of risk** (A1) may be due to dubious information, the misinterpretation of information or, simply, insufficient information.

Early warning systems gather information. It is extremely difficult to make them completely reliable as the signal-to-noise ratio is often low, signals may be weak or strong, and signal interpretation may be ambiguous. Early warning systems are prone to false positives, which cost resources to investigate and undermine confidence in the system, and false negatives, in which they miss the signals they were intended to spot. The key is to ensure that early warning systems can identify perturbations, events or trends with the potential to become significant risks.

There are many examples of the consequences of ineffective early warnings. The tsunami of December 26, 2004, which killed approximately 230,000 people in South-East Asia, was not a unique event – there had been many before – but its timing and magnitude were unpredictable. This pointed to the need for an early warning system to detect an earthquake which might cause a tsunami in the Indian Ocean. The subsequently implemented early warning system gave warning of a tsunami in Indonesia in September 2007 over 15 minutes before it hit [Normile, 2007].

An early warning system will not by itself provide sufficient or appropriate factual knowledge for a robust risk assessment. A **lack of factual knowledge** (A2) may result from gaps in scientific data (for example due to insufficient research funding or misdirected efforts). It could also result from misinterpretation or flawed analysis of information, or a failure to verify the quality and completeness of the data (its scientific basis) or to appreciate its associated uncertainty. Inadequate knowledge is also linked to important deficits in risk management (see Section 2).

Poor factual knowledge about risk is exemplified by controversies over radio-frequency electromagnetic fields. The spread of mobile telephones and other electronic technology has increased our exposure to these fields faster than our knowledge of the potential risks has grown. In particular, scientific evidence does not indicate that electromagnetic fields cause long-term health effects such as cancer, but this cannot be completely ruled out with the evidence to date [NRPB, 2003].

Even when a risk is apparent, stakeholders may nevertheless disagree on its importance. For this reason, the **omission of (or use of erroneous) knowledge related to the public's risk perceptions and concerns** (A3) can mislead risk decision-makers. Citizens, managers, politicians and others have their own interests, values and ways of thinking about things. Perceived risks can be very different from scientifically-derived estimates, and differences in risk perception can vary between social groups, or even countries. Europeans tend to worry more about climate change than Americans, but less about local air pollution from vehicles or from second-hand

A1
Is there an early warning system in place that produces useful signals?



A2
Is adequate and factual knowledge available?

A3
How do perceptions of the risk differ from factual evidence?

tobacco smoke; American consumers are, overall, less wary of genetically modified food than Europeans. Importantly, perceptions of risk can also change over time.

1.2 Dealing with disputed, potentially biased or subjective knowledge

A4 How are stakeholders involved?



Knowledge may be disputed, potentially biased or subjective. This makes it difficult both to judge whether or not a risk needs specific attention or action and how it should be managed. Nevertheless, the inclusion of knowledge gathered from a variety of stakeholders can be highly valuable in risk assessment, and should not be discounted. **Not consulting the relevant stakeholders (A4)** could de-legitimise both the process of the risk assessment and its outcome.

Many stakeholders will offer useful input. This may be derived from scientific expertise, local knowledge or prior experience. Whilst enriching the risk assessment, the data may be selective and may reflect an organisation's or individual's particular interests and, in some cases, ideologies. With careful management, however, seeking such input can enrich the risk assessment process and uncover valuable and unique knowledge and insights. There is also evidence (for example from a large infrastructure dam project - the Nagara River Estuary Barrage project in Japan) that thoughtful and early involvement of citizen groups in risk assessment can increase the acceptability of major capital projects [Okada et al., 2008].

A5 What variables influence risk attitude?

Perceptions and value judgements influence risk acceptability. **Gathering information about risk attitude, risk acceptance and risk appetite (A5)** is therefore a necessary part of sound risk governance and a logical follow-on from collecting knowledge of public risk perceptions. Doing so requires developing an understanding of the underlying variables that influence public risk acceptance and private risk appetite. Such variables include: whether a risk is incurred voluntarily (e.g., smoking); whether it is controllable by personal action; whether or not it is a familiar risk; and, whether it disproportionately affects vulnerable subpopulations (e.g., the poor or children). Objections to genetically modified food or stem cell technologies show that aversion to risk may sometimes be based more on beliefs than on scientific facts.

One common criterion for acceptability is that the risk should be spread equitably, so that the people who benefit from an activity cannot impose negative impacts on others. However, policies intended to increase equity can have undesirable secondary effects: in the 1970s, three states in the United States (US) refused to house national repositories for low-level radioactive (LLR) waste leading Congress, in 1980, to pass laws making each state responsible for its own LLR waste. This led to more people being affected by storage sites as well as making disposal less efficient [Vari, 1996].

A6 Is this a controversial issue?

Sometimes risk assessors will deliberately be provided with **biased, selective or incomplete information (A6)**. Those supporting or opposed to a development,

government officials hoping to calm debate, or journalists wanting to heat it up may all strategically manipulate information. Sometimes the source of funding for research may itself cause concern. For many years, the tobacco industry funded scientific research that yielded results compatible with its public positions and created uncertainty about the health risks of passive smoking. A risk assessment fails to fulfil its purpose if risk decision-makers cannot ascertain the quality, objectivity and certainty of the knowledge presented to them.

1.3 Dealing with knowledge related to systems and their complexity

The difficult identification and quantification of causal links between components of complex systems presents significant risk assessment challenges. Assessments that do not **appreciate or understand the consequences of complexity** (A7) will not be fully informative and can lead to inappropriate trade-offs and increases in other risks.

A case in point is the Barents Sea fishery, in the Arctic Ocean, north of Norway. Prior to its sudden collapse in the 1980s nobody had accounted for the complexity of its ecosystem. The role of local herring as predators of capelin was ignored until changed environmental conditions brought about a large growth in the numbers of herring, leading to a devastating collapse in capelin numbers [Hamre, 2003].

Fast or fundamental changes to a system (A8) can cause new risks to emerge or old ones to mutate. When this occurs, as when a tipping point is reached, disruptive change can necessitate a new risk assessment. However, analysts and decision-makers may not recognise such changes if they are novel or unexpected or their effect is not immediately apparent. They may thus be slow to react, potentially increasing the risk of adverse consequences.

In the US, the spread of the Human Immunodeficiency Virus (HIV) which causes Acquired Immuno Deficiency Syndrome (AIDS) went unnoticed until rates of infection rapidly increased. Education campaigns to raise social awareness and decrease the infection rate were not put in place until seven years after the first diagnoses. New cases are now much rarer in the US, but HIV/AIDS remains a challenge.

Models can be a useful tool in risk assessment, helping to improve the understanding of interactions, or foresee possible future changes. However, risk assessors and decision-makers need to remember that **models have limitations** (A9). For example, they are dependent on the quality of their input data and are bound to reflect modellers' assumptions, such as their ideas regarding what a model is intended to observe and control. Also, the results of modelling exercises can be misinterpreted and decision-makers need a basic understanding of a model in order to accurately judge its results. An over- or under-reliance on models can thus be problematic.

A7
Does the assessment consider systemic interactions?



A8
Are we monitoring relevant changes?

A9
Are model inputs, assumptions and results regularly reviewed?



In the US subprime crisis decision-makers relied too heavily on models to give them indications of risk and the creditworthiness of securities when, as Alan Greenspan put it, models “are still too simple to capture the full array of governing variables that drive global economic reality” [cited in Shiller, 2008].

1.4 Acknowledging that knowledge and understanding are never complete or adequate

A10
What tools are used to stimulate creative thinking?



Past experience has taught us to expect surprises. No one can reliably predict the future. No matter how good an early warning system is, or how thoroughly risk assessments are conducted, it is important to acknowledge that risk assessment relies on decisions about what, conceivably, could go wrong. In setting the boundaries for the formal risk assessment process, decision-makers need to remain conscious of the fact that surprises, or events outside expected paradigms (so called “Black Swans”), are always possible and that it is necessary to break through embedded cognitive barriers in order to **imagine events outside the boundaries of accepted paradigms** (A10).

While there had been some warnings of attacks of the type that happened on 9/11, they were not taken seriously because of their sheer unimaginability. US experts admitted later that their thinking had been framed by an era of kidnapping and hostage-taking in which the criminals involved wanted a basis for negotiation. The idea of suicide attackers who simply wanted to kill large numbers of people by using an airplane as a bomb was beyond imagination [Jones, 2001].

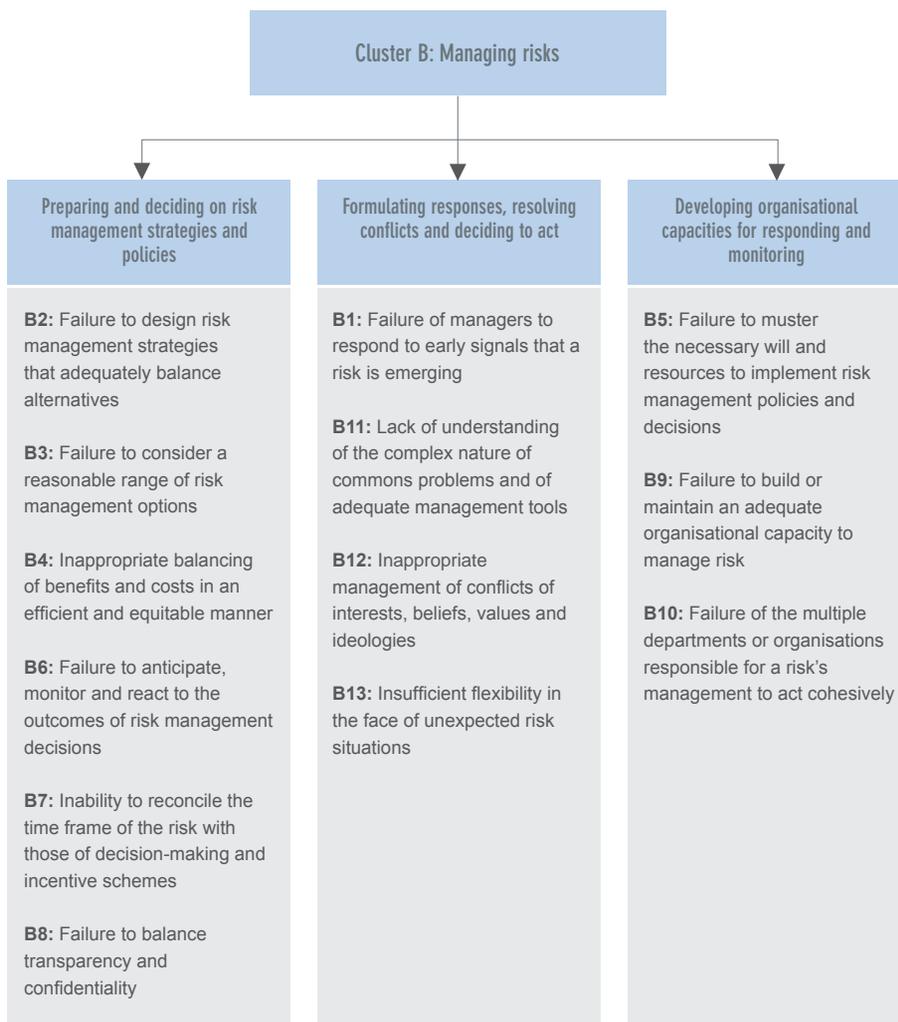


Successful risk management builds on prior risk assessment and understanding. However, even if risk assessment is sound, deficits in risk management can undermine the governance process and lead to adverse outcomes.

In practice, risk managers in government and business may neglect serious risks, make decisions with unintended outcomes or side effects, or micromanage risk to the point that technological innovations are suffocated. Many organisations are under-equipped to deal with the challenges of uncertain future risks that arise in complex systems. They may also lack the flexibility and resilience that is often critical when responding to risks that occur unexpectedly. Depending on their values, resources and priorities, organisations may prioritise and manage the same risk differently.

IRGC has identified 13 deficits relating to managing risks which can be grouped into three areas as illustrated in Figure 2, below.

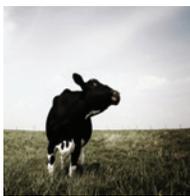
Figure 2: Deficits relating to managing risks



2.1 Preparing and deciding on risk management strategies and policies

Several deficits derive from failures or deficiencies on the part of risk decision-makers to set goals and thoroughly evaluate all the available risk management options and their potential consequences.

B2 What is the risk management strategy?



Effective risk management needs a clear objective, a strategy to reach this objective, and a plan to implement that strategy. This seems straightforward, but **designing an effective risk management strategy** (B2) is not always easy – especially when dealing with systemic risks in complex systems. Often there will be more than one objective for a risk management policy, in which case trade-offs must be carefully considered.

One reason for the United Kingdom (UK) government's failure to enact efficient policies to stop the transmission of Bovine Spongiform Encephalopathy (BSE) was its pursuit of dual policy objectives – to protect both public health and agricultural and industrial interests. As a result, regulations imposed on the meat industry were not initially as stringent as they should have been, and this ended up costing money as well as lives [van Zwanenberg and Millstone, 2002].

Longer-term problems can call for strategies that are flexible over time – adaptive governance can help maximise regulatory effectiveness. An example is the US Occupational Safety and Health Administration (OSHA), which was set up in 1971 with specific targets for reduced workplace injuries. When OSHA did not meet these targets, it changed its strategy to a focussed campaign of inspecting and punishing known bad employers. This led to a measurable reduction in workplace injuries [Viscusi, 1992].

B3 Are all reasonable options fully considered?

Often, there are several risk management options available to meet set objectives. But not all reasonable, available options are necessarily considered (B3) before a plan of action is decided upon: risk managers may not look for all the options, may be pressed for time, or have set preferences for (or prejudices against) particular approaches. Ideally, **a wide range of alternative risk management options, and their consequences, should be evaluated and compared.**

Fisheries regulation often requires that a combination of different risk management strategies be used, including closed seasons and areas, catch quotas (which can be traded in some cases), and restrictions on fishing gear. Multiple risk management options must be considered, alone or in combination, for each individual fishery and its particular circumstances in order to get the best results.

B4 Is this an efficient risk management strategy? Is this an equitable risk management strategy?

Risk management strategies should also be as efficient and equitable as possible (B4). Inefficiency can arise partly because it can be difficult to attach definite numerical values to the costs of a risk strategy or to the benefits which it will generate. Inequity can arise when a measure intended to reduce risk has a cost which falls mainly on those



least able to afford it. Tools such as “soft” cost-benefit analyses (including qualitative aspects) and Regulatory Impact Assessment (RIA) have been designed to help **avoid inefficiencies and inequalities**.

The debate about efficiency and equity analysis is well illustrated by the question of how to tackle greenhouse gas emissions. Many analyses have been done to compare the efficiency of tradable permits versus taxes as a means to reduce carbon dioxide (CO₂) emissions, with the European Union (EU), for example, deciding in favour of tradable permits. Equity considerations (acknowledging the developed world’s dominant role in producing harmful emissions) were also central to concluding the Kyoto Protocol to the United Nations Framework Convention on Climate Change.

However, even an effective, efficient and equitable risk management policy could still have unintended secondary impacts (B6). For this reason, efforts must be made to **anticipate the consequences (particularly negative side effects) of a risk management decision**.

Biofuel policies designed to strengthen energy security, for example by promoting production of corn-based ethanol in the US, could have negative impacts elsewhere, such as on food prices or indirect greenhouse gas emissions. Because not all side-effects can be anticipated, it is equally important to monitor the effects of risk management decisions and actions and to prepare contingency plans for use in the event that monitoring reveals risk management measures to be failing or causing negative impacts.

Monitoring played an important part in how the world has addressed the problem of ozone depletion. When it was discovered in 1974 that anthropogenic emissions of chlorofluorocarbons (CFCs) were causing the depletion of stratospheric ozone, efforts to monitor these emission levels and the rates of ozone loss were quickly mounted. The signing of the Montreal Protocol on Substances that Deplete the Ozone Layer in 1987 led to the implementation of risk management measures (bans and phasing out of ozone-depleting substances), the effects of which have been consistently monitored ever since, with promising results [UNEP, 2000].

Many risks occur over the long-term and need management solutions that are suited to this time frame. A variety of pressures lead governments and businesses to focus on the short-term – the political process is driven by the election cycle and politicians have strong incentives to choose solutions that will show immediate results, while company directors are responsible for maintaining share prices and profits in the present, not in decades to come. However, an inability to **reconcile the time-frame of the risk issue with that of decision-making pressures and incentives** (B7) can severely affect a risk’s management.

The case of asbestos provides a prime example. The long latency period of the lung diseases caused by asbestos, which can appear up to 50 years after exposure, contributed to complacency on the part of industry and regulators in many countries,



B6
What are the potential side effects of the risk management decision?



B7
Does the risk management strategy’s timescale fit that of the risk?



B8
**What should and can
 be communicated to
 stakeholders?**

who were primarily worried about more immediate issues such as profits and jobs. It is now estimated that claims from victims of asbestos-related disease may total up to £20 billion in the UK alone over the coming decades [Jones, 2004].

Finally, when deciding on a risk management strategy, there is a **need to find a balance between transparency and confidentiality** (B8). Transparency is a growing requirement in politics and business and can foster stakeholder trust in the risk governance process. But confidentiality is also important for reasons which include national security, protecting sensitive business information, and personal privacy (e.g., confidentiality of health records).

A deliberate lack of transparency in the accounting practices of the American energy company Enron hid its dire financial situation from investors and shareholders so that its sudden bankruptcy in 2001 shocked the market and caused a huge scandal [Dembinski, 2006].

2.2 Formulating responses, resolving conflicts and deciding to act

Clearly, the careful design, evaluation, communication and monitoring of a risk management strategy is not a straightforward task and requires consideration of many different elements. Additionally, risk management takes place in a wider context, and that context is important both to achieving a good understanding of a risk and to formulating a risk management response.

B1
**Are early warning
 signals processed?**

When there is advance warning of a risk, decision-makers must decide whether it is a priority and what level of response, if any, it deserves. A deficit can occur at this stage if, for example, **early warnings are picked up by analysts but are not effectively filtered, analysed and communicated** (B1) to the decision-makers who should act on them. For warnings that do get through, any ambiguity in the warning may turn into a reason for inaction if the information is inconvenient or jeopardises particular interests. Under-reaction may also result from the way the risk is prioritised.



One such case preceded Hurricane Katrina, which devastated New Orleans in 2005. In both the long and the short-term, ample warning of the disaster was met with an insufficient response. It had long been appreciated that the city was in danger, but funding for hurricane protection (including levees) and preparation and response (including evacuation exercises) was not adequately prioritised [ILIT, 2006].

Over-reaction to a possible hazard, on the other hand, may lead policymakers to introduce over-zealous regulation or it may produce public alarm. In the UK, a speculative and now discredited article in *The Lancet* in 1998 led to the controversial association of the measles, mumps and rubella (MMR) vaccine with autism, which resulted in a significant reduction in the number of children being vaccinated [HPA, 2008].

Some types of risk may require the use of specific tools to manage them. One type are those which concern the “Commons”, assets to which all members of a community share rights or access and which can be damaged because nobody, individually, has a strong enough interest in conserving them. Indeed, commons may be subject to no system of property rights at all. The Earth’s climate is perhaps the ultimate commons. An understanding of the **complex nature of commons problems** is essential (B11) for formulating a suitable risk management response. This is because these risks are peculiar in that they generally require solutions that provide some form of property rights, plus long-term cooperation between multiple parties (sometimes between nations). The Montreal Protocol (see p.13) is a good example of such cooperation.

Cooperation can be difficult to achieve when fundamentally different interests, values and ideologies are involved. In such cases, **conflict resolution** (B12) is an indispensable skill for the risk manager. Being aware of when a conflict colours a risk issue, and what the basis and outlook for this conflict might be, will help in deciding if and how to act. Depending on the nature and motivation of the conflict (e.g., ideology-based versus interest-based conflict), different pathways to resolution may be required. However, some conflicts may be inherently irreconcilable: many observers regard the Israeli-Palestinian conflict as one of the most intractable in the world today.

Standard responses are sometimes not sufficient or adequate to deal with risks that escalate into unexpected crises (B13). Risk managers must be able to recognise when they are faced with such risks, such as when they have to face natural disasters, breakdowns of large critical networks, or acts of terrorism with large secondary effects. They should also acknowledge that systems and processes which work well today may not work well when dealing with unexpected and unforeseeable events. This means that decision-makers’ **capacity to respond to unexpected events** depends on their flexibility – for example, their authority or willingness to reallocate resources when required – and the level of resilience and redundancy built into their organisational systems. The greater the redundancies and resilience, the better the system will react to unexpected surprises, giving risk managers more time to adapt to new circumstances.

Actions taken in light of the potential risks posed by the “Millennium Bug” included building redundancies by installing multiple back-up systems and increasing resilience by decentralising certain critical infrastructures. Although no major problems surfaced on 1 January 2000, these actions were not without benefit, as they had a major effect on risk management and contingency planning in the information technology (IT) industry [Cumming, 2002].

B11
Will stakeholders engage to manage risks to common assets?

B12
Is there a conflict resolution process?

B13
Are we prepared for and can we respond to unexpected events?



2.3 Developing organisational capacities for responding and monitoring

However well risk management strategies are designed, it is their execution, through plans and decisions, that will make the difference in managing risk. For this, decision-making power, resources and coordination are prerequisites for success.

B5
How well are risk management decisions enforced and implemented?

There is sometimes a temptation for politicians or businesses to announce that they are doing something about a risk but not to follow through, especially when a voluntary agreement or code has been adopted instead of a regulation, or when following through will drain resources or be expensive. Risk management decisions can achieve little if there are **failures in either implementation or enforcement** (B5).

An example of the latter occurred during the outbreak of BSE in the UK, when a ban imposed on the incorporation of certain kinds of bovine offal in human food was widely disregarded by industry because of a lack of enforcement measures [van Zwanenberg and Millstone, 2002].

B9
Is the necessary risk management capacity available?

Also, for most organisations, risk management is only one of many business priorities. Therefore, they may lack an adequately developed risk culture and may not possess the **organisational capacity** (B9) (assets, skills and capabilities) to manage all the risks to which they are exposed.

Even organisations which are focussed on risk management can be found lacking in organisational capabilities – the US Federal Emergency Management Agency was suffering serious personnel and budget shortages at the time when Hurricane Katrina hit, thus making its preparation for and response to the disaster severely inadequate [Senate Report, 2006].

B10
Are there defined and clear responsibilities?

Many risks, particularly those which are systemic in nature or which affect one or more interdependent complex systems, require management by multiple, dispersed governance structures. No single entity has overall responsibility. Instead, risk management involves a combination of many different organisations, or different departments within the same organisation (as in the case of government ministries or operating companies within a corporate group). Most organisations are intended to work in a dispersed way. However, **dispersed responsibilities** (B10) generate another challenge for risk governance. While compartmentalisation can create excellent focus on a specific problem, it can also mean that novel or unexpected issues are overlooked. There can be risks that are not considered to be anyone's responsibility. Alternatively, multiple entities may have overlapping responsibilities, leading to uncoordinated responses or duplicated efforts and wasted resources.



The Swiss-Italian power outage of September 2003 affected 56 million people. It was partly blamed on misunderstandings between independent transmission service operators in the two countries, and how responsibilities were shared between them [UCTE, 2004].

3.1 What to do: reducing risk governance deficits

Comprehensive recommendations could be drawn from each of the 23 risk governance deficits but here we choose to highlight four thematic directions that are likely to be useful for practitioners in many situations.

Address the uncertainty challenge

The most compelling feature of risk is the necessity to act in the face of uncertainty about what the consequences of action will be. Even a decision not to act is a form of action with uncertain consequences.

Part of the solution is to see science, data, and analytic models as tools to resolve some of the tractable uncertainties. Organisations need to improve their early warning systems, identify gaps and biases in existing data, gather new scientific information about which populations are vulnerable and which effects are irreversible, use models to gain insight into how risks may emerge from complex systems, and establish surveillance systems to monitor how an evolving risk is behaving over time and how well response strategies are working. Sound risk assessment is receptive to scientific advances but also recognises the limitations of analytic models, and the barriers that single disciplines or prevailing paradigms may impose. Ideally, risk assessors will imagine events that are outside the realm of what is considered likely or even plausible, without giving undue attention to far-fetched or alarmist suggestions.

Embrace risk taking and risk aversion

A forward-looking organisation recognises that wise management of risks entails some risk taking as well as some risk avoidance. When a sentiment for risk aversion is dominant, the organisation may suffocate or discourage beneficial innovations. But when risk taking is not prudent, the organisation may impose unnecessary harm on workers, consumers, investors and/or ecosystems. While it may not be feasible for an organisation to accomplish optimal risk taking with mathematical precision, a risk culture implies that the organisation fosters and respects voices for risk taking and risk aversion.

Adapt rules and regulations to new circumstances

Risk managers and regulators have a natural tendency both to avoid onerous rules and regulations unless they are necessary and to defend them against criticism once they have been adopted. Many risks, however, are characterised by unexpected changes in the likelihood of harm, the scope and severity of potential damages, and the range of measures that are considered suitable for risk management. In decision-making environments that are uncertain and dynamic, a good risk culture calls for adaptive regulatory responses. Adaptability is sometimes at odds with the desire for a certain or predictable policy or regulatory environment, but, in the face of changing circumstances, risk managers and regulators must retain a degree of flexibility that allows for reconsideration of past choices.

Cultivate trust through communication

Many failures in governance are linked to problems of trust, yet risks can exacerbate mistrust by making it easier for antagonistic parties to point fingers at each other. There is no foolproof remedy for mistrust, but open lines of communication, both inside and outside an organisation, are known to help foster trust among stakeholders. Communication means not just the release of information but the opportunity for meaningful dialogue at each stage of the process: as signals from early warning systems are interpreted, as risk assessments are subject to peer review, as stakeholder and public sentiments about risks are gauged, as judgements about risk acceptability are reached, and as risk management strategies are considered. A risk culture defined by open lines of communication, combined with confidentiality only when unavoidable, can help sustain trust that has been earned and gradually restore it when it has been lost.

3.2 How to do it: a structured approach aimed at continuous improvement

Although IRGC's report and this policy brief have presented 23 governance deficits as distinct phenomena, there are many links between the deficits (e.g., designing effective risk management strategies and ensuring that they are implemented and enforced). Nor have we tried to rank the various deficits in any particular order of priority for organisations to address. When faced with a specific risk, some risk governance deficits may be more relevant or more important to address than others. It is the task of each risk decision-maker or practitioner to identify those deficits important to them and to the context of the risk that they are addressing.

What we can say with confidence is that organisations can benefit from an explicit, structured approach to risk assessment and management that is designed to foster continuous improvement. In the absence of such a process, organisations tend to treat risks as isolated incidents, without conscious effort to compare and learn from different experiences. While it is true that risks often have unique features, our inquiry into common risk governance deficits suggests that organisations and society can learn from experience and improve performance over time.

We suggest that organisations use the 23 deficits as a basis to either create an explicit structured approach to risk assessment and management; as a vehicle to help refine an approach that already exists; or even to challenge predominant risk perspectives. We suggest further that the approach be applied across the organisation only after stakeholders have had an opportunity to participate in the design of the approach. The approach should be applied to emerging as well as existing risks, and should include feedback or evaluation loops to ensure that learning takes place over time.

Since risks are often uncertain or rare events, it may not be feasible to determine, *ex post*, whether specific management measures were effective. In particular, cost/benefit calculations for low-probability risks are often difficult. For example, if no adverse events occur, it may be that the postulated risk was not present in the first place. Moreover, even highly effective measures may only reduce the probability or severity of adverse events. Thus, when adverse outcomes occur, it should not necessarily be assumed that measures were ineffective or an organisation's entire approach to risk is faulty. A system to document near misses and to communicate them across organisations for similar situations can be very helpful. What can be learned is whether the key components of a risk culture were operational (e.g., early warning systems, analysis of unlikely yet high-consequence events, meaningful stakeholder participation, explicit judgements about risk acceptability, relevant risk decision architecture within an organisation, consideration of multiple measures and so forth).

In summary, there is no "cookbook approach" to risk culture that organisations should implement. A good place to start may be a deliberative exercise where an organisation considers whether and how the 23 risk governance deficits are applicable across their risk landscape, and whether their risk culture can be buttressed in specific ways due to a better appreciation of the common deficits that we have documented.

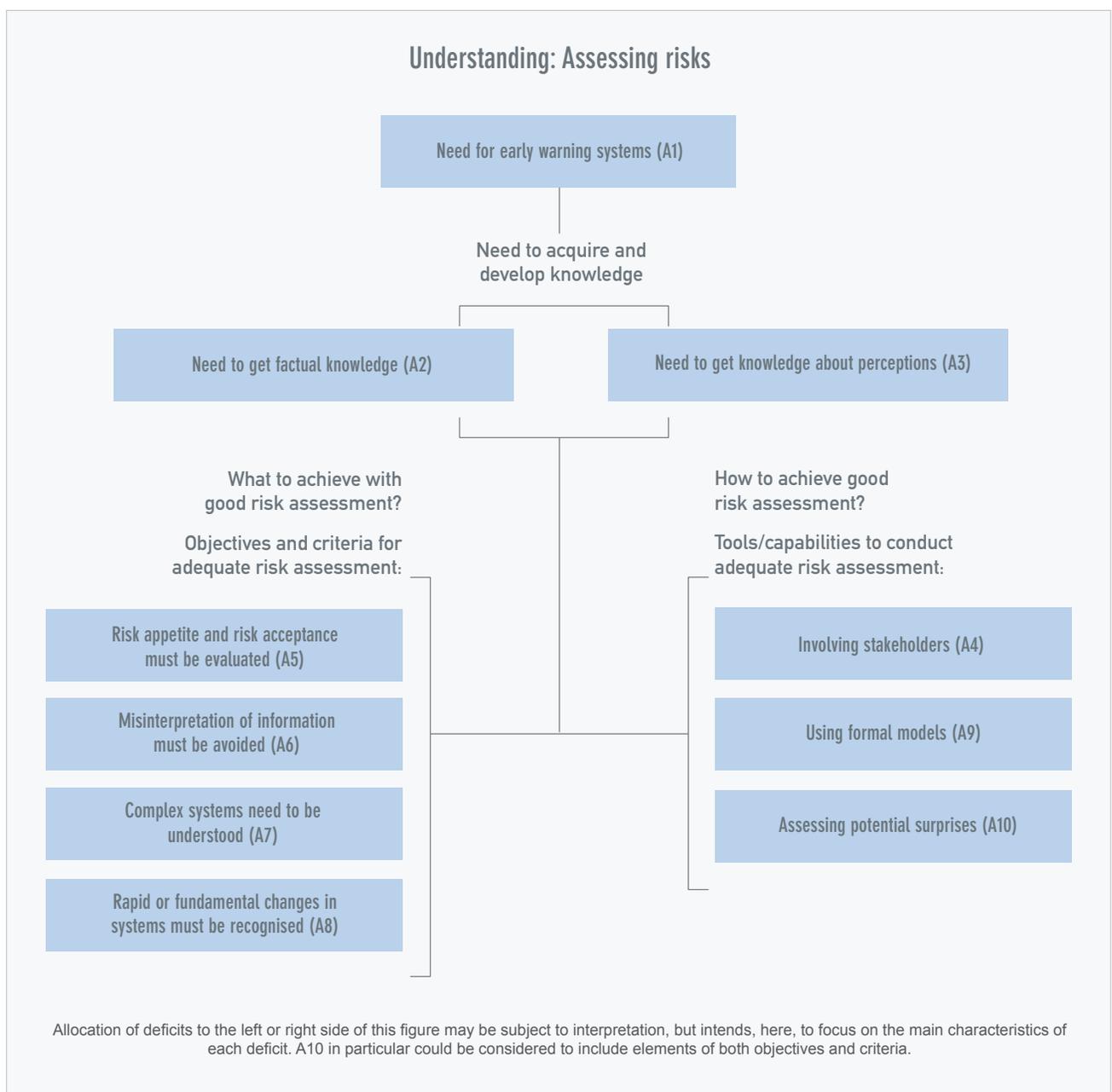
Application guidelines (including, for example, exercises and questions that could be used in training sessions or workshops) will also be developed by IRGC.

Please consult IRGC's website at <http://irgc.org/-Risk-Governance-Deficits-and,124-.html> for updates on the progress of this project.

This policy brief is based on the IRGC report on Risk Governance Deficits, available at www.irgc.org. A complete list of references is published in that report.

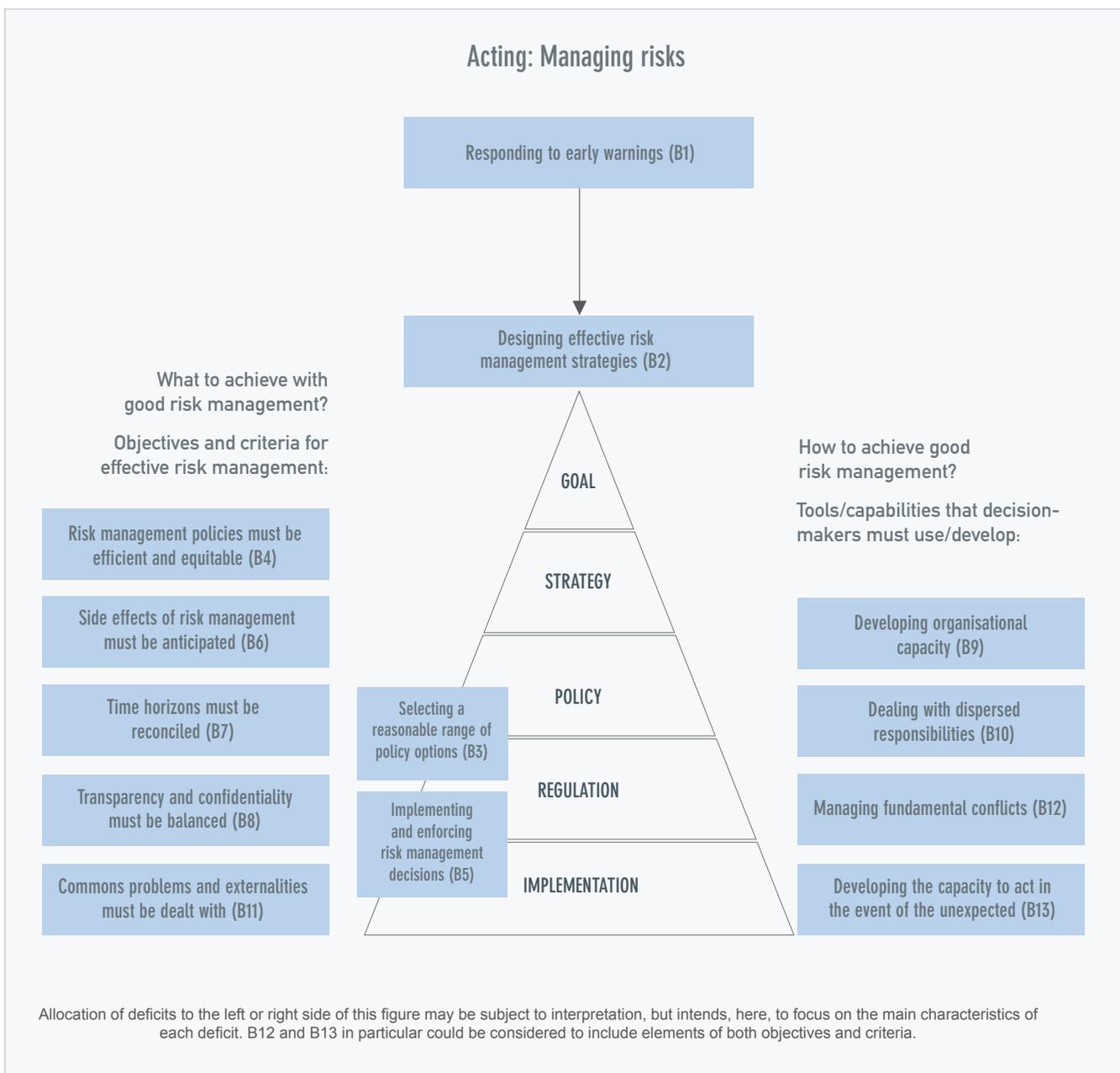
It is easier to pinpoint deficits in previous situations than it is to offer forward-looking recommendations for risk practitioners in government, business and elsewhere. Recognising that each risk may have unique features that require tailored responses, we offer some general recommendations for how organisations can improve their governance of risks. One set of recommendations concerns “what to do” while a second set concerns “how to do it” (see Figures 3 and 4). Taken together, the two sets of recommendations can be seen as an organisational pathway towards establishing an effective “risk culture”.

Figure 3: Risk assessment decision map



Risk culture refers to a shared set of beliefs, values and practices within an organisation regarding how to assess, address and manage risks. A major aspect of risk culture is how openly risks can be addressed and information about them shared among a risk community. Risk cultures will vary between organisations, according to their needs and circumstances. However, a good risk culture always produces a sound basis for deciding how the competing pressures for risk avoidance, risk reduction, risk transfer and risk taking are resolved.

Figure 4: Risk management decision map



Please refer to the **Risk Governance Deficits** report for a more extensive list of references.

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Note:

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The International Risk Governance Council (IRGC) is an independent organisation based in Switzerland whose purpose is to identify and propose recommendations for the governance of emerging global risks. IRGC's mission is to promote the improved understanding and governance of emerging global risks to human health, safety, the environment and to society at large. Understanding, assessing and managing as well as balancing risks and opportunities is an important element of this process.

IRGC's work includes developing concepts of risk governance, anticipating major risk issues, and providing risk governance recommendations for decision-makers. To ensure the objectivity of its governance recommendations, IRGC draws upon international scientific knowledge and expertise from both the public and private sectors in order to develop fact-based risk governance recommendations for policymakers, untainted by vested interests or political considerations.

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