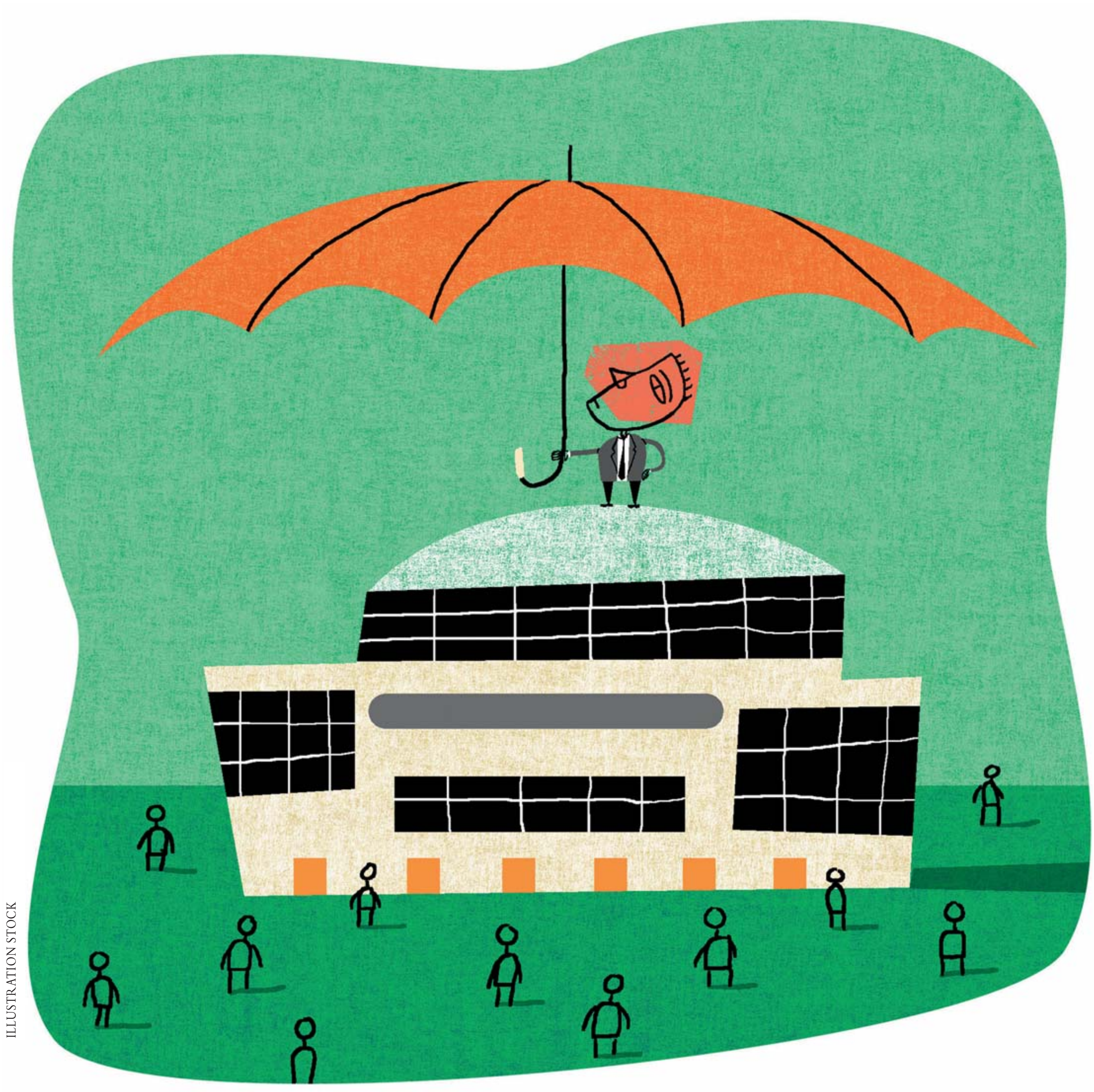

ILLUSTRATION STOCK

An approach to their *Analysis* as *Operational Risks* in the light of SOLVENCY II

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Safety and Environment
MAPFRE

We are witnessing increased concern over the control of risks of all kinds and in all fields. The era of crisis which we are living increases this need for control, without forgetting other fatefully sad and topical events such as terrorist attacks or natural disasters. The common denominator for all of them is that they have provoked serious and often irreparable damage against which preventative measures had not been taken, at least not correctly.

Certainly, concern for risk is not a new attitude. It could be said that it is inborn in the human being and, consequently, in all of their activities. But what can be considered to be a new phenomenon, undoubtedly fostered by the circumstances to which we have referred, is the increasing level of this concern, both in intensity

and in extension, with regard to all possible risks. Together with this concern, there is a growing perception of the need to apply scientific and rationalized procedures, in an integrated way, to control the risks.

In consequence with the above and with the objective, amongst others, of achieving appropriate and effective management of all the risks that could affect to the banking sector, the Agreements of Basel[1], were enacted, as well as the EU Directive Solvency II[2], for the insurance sector.

In this context, it is the intention of this paper to focus on the analysis of safety and environmental risk management within the framework of a company´s integrated risk management in general, concentrating on the insurance sector within the context of Solvency II.

SOLVENCY II AND THE OPERATIONAL RISK

Solvency II, like Basel, leaves no doubt as to the need to manage and to control all risks, «present and future», to which the business could be exposed. It is a comprehensive approach, that is to say, it is necessary to control all risks, regardless of their nature.

On the other hand, in these Directives, great importance is attached to the operational risk[3], within the total risks to which companies can be exposed. Analyzing what is established under Solvency II in this respect, the importance attached to the management of these risks can be appreciated.

It is very well known that the level of efficiency and the model adopted for risk management will directly affect the minimum capital requirements for both insurers and financial institutions.

Thus, one of the main objectives that Solvency II brings is the development of a new system that

[1] Directive2006/49/EC, of 14 June 2006, on the capital adequacy of investment firms and credit institutions, the 2004 Basel New Capital Requirements Directive and Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions (recast). In September,2010, the Basel III agreement was reached, which hardened the capital requirements

[2] Directive 2009/138/EC ,of 25 November 2009, on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II).

ONE OF THE MAIN OBJECTIVES THAT SOLVENCY II BRINGS IS THE DEVELOPMENT OF A NEW SYSTEM THAT ENABLES THE ESTABLISHMENT OF THE MINIMUM CAPITAL REQUIRED BY EACH INSURER DEPENDING ON THE RISKS WRITTEN AND THEIR MANAGEMENT

enables the establishment of the minimum capital required by each insurer depending on the risks written and their management. Moreover, it establishes certain mechanisms to achieve effective and efficient risk management and its verification by the supervisor.

The Directive links the achievement of this objective to the need for Insurance and Reinsurance companies to have an adequate governance system that is also subject to supervisory review. In the legal text, «governance system» is defined as the internal capacity to carry out tasks of a practical nature; that embraces processes, customs, politics, laws and institutions that affect how a company or corporation is managed, administered or controlled.

To continue with Solvency, risk management is an important function integrated within the governance system.

With more specific regard to risk management, Solvency II states that insurance and reinsurance companies should have an effective risk management system, which will comprise the necessary strategies, processes and information procedures to continually identify, measure, supervise, manage and notify the risks to which they are or could be exposed, as well as their interdependencies.

[3] The author, María Ángeles Nieto Giménez-Montesinos, in her paper «The treatment of the operational risk en Basel II» (Bank of Spain. Financial Stability, num 8. Pdf), highlights the increasing importance of the operational risk, verified by its treatment as Pilar 1 by Basel II, behind the credit risk and very much in front of the market risk as far as capital requirements are concerned.

SOLVENCY II: PILARS AND GOVERNANCE SYSTEM

OBJECTIVES / PILARS

1. **To develop a new system to determine the minimum resources to be required of each insurer as a function of the risks accepted and the management undertaken of the same.**
2. To establish new jurisdictions and performance mechanisms for the supervisors.
3. Establish what risk information and its management should be provided by insurers.

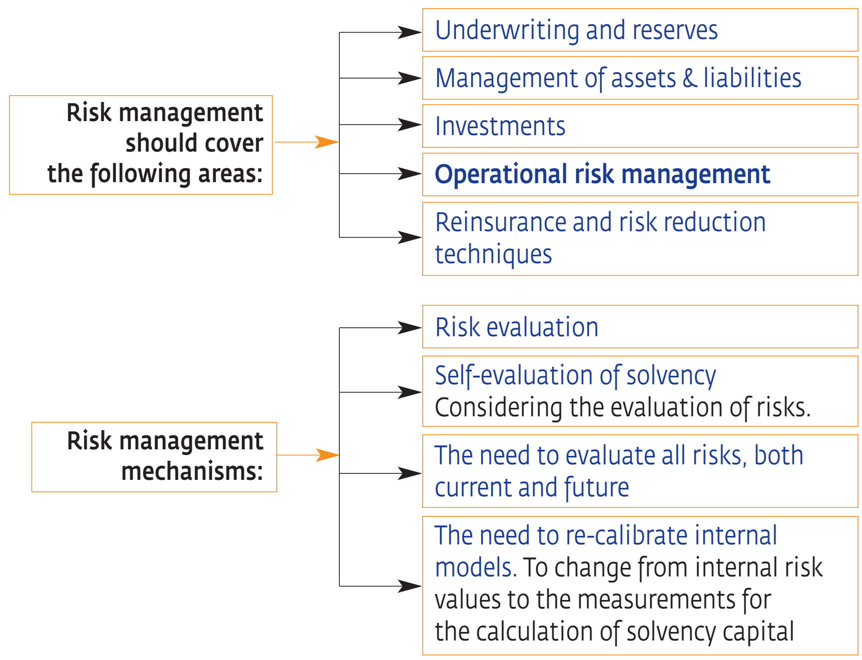
GOVERNANCE SYSTEM

Insurers will have to adopt it and it will comprise the following «IMPORTANT FUNCTIONS»:

– **Risk Management**
– Compliance verification / Internal control.
– Internal Audit. Must be independent of other operational functions.
– Actuarial function.

Source: prepared by author

SOLVENCY II: RISK MANAGEMENT FUNCTION



Source: prepared by author

Finally, amongst those areas that should be encompassed within the risk management function, operational risk management should be mentioned expressly.

One should consider that article 41 of the Directive establishes the need to have a written risk management policy, which, obviously, will constitute the framework for the whole process.

It can be appreciated also that importance is given to operational risk management as it is expressly mentioned as one of the risks that has to be covered to calculate the obligatory solvency capital.

Regarding what is considered to be an operational risk, it should be said that Solvency II defines it as a derivative of the inadequacy or the malfunction of internal processes, personnel and systems, or of external events. It includes legal risks but not those risks derived from strategic decisions or reputation risks. This definition coincides with that adopted by Basel II[4].

Solvency II does not specify which risk areas would be considered to be operational risks. Basel does mention the following: internal fraud, client practices, products or businesses, safety in the work place, damages to material assets, fraud, business incidences, system failures.

Having reached this point, it is necessary to break down the function or functions of the Safety Departments in order to clarify whether the nature of the risks that are managed there should or need to be included with the operational risks. If the answer is affirmative, then it should be concluded that the management of these risks should also be treated under the prism of Solvency II for insurers

4 Basel II defines operational risk as the inadequacy or failure of processes, personnel, internal systems or the consequence of external events. It includes the legal risk and excludes reputational and strategic risk.

or the Basel Agreements in the case of banking. These conclusions could be extended to all other companies by way of reflections for integrated risk management.

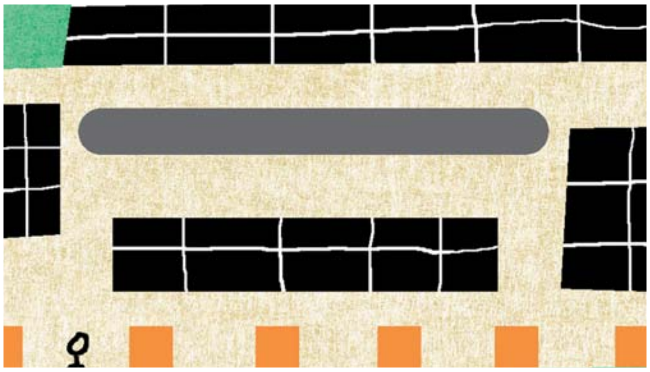
ARE SAFETY AND ENVIRONMENTAL RISKS OPERATIONAL RISKS?

To answer this question, first of all it is necessary to establish what is understood by «safety and environmental risks».

Thus, all those risks that are managed traditionally by the safety and environmental departments can be considered under this heading. In order to clarify the field to which we refer, we would mention, by way of significant examples, anti-social risks are considered to be included under this heading (theft, robbery, threats, terrorism, malicious damages, etc.). However, these types of safety and environmental risks do not end here but, to the contrary, there is a wide and varied number of risks that are managed by safety departments or divisions in companies.

Neither would it be correct to identify safety and environment risks exclusively as property risks, since we would be forgetting risks that are so emblematic in safety as those that can cause damage to persons (aggressions, threats, extortion, kidnap, terrorist attacks, etc.).

As an example, and without it being a closed catalogue or numerus clausus, the following are areas of risk that are or can be dealt with by Safety:



- Risk of fire.
- Risks of nature.
- Anti-social risks.
- Environmental risks.
- Risks derived from damage to or attacks against information, even those from LOPD (Data Protection Law).
- It is not unusual for emergency and self-protection plans to be managed from the Safety departments. There are also authors who

[5] By way of example, safety, environmental and occupational risks are treated together in the work entitled «Manual of Risk Evaluation and Administration"», by the authors Rao Kolluru, Steven Bartell, Robin Pitblado y Scott Stricoff. Publishers - Mc Graw Hill.
In the works or safety treaties it is normal also to encounter occupational safety amongst the disciplines managed together within safety such as in the «Manual for the Safety Director», published by E.T. Estudios Técnicos, 1996. This is also the case in the «Technical Instructions for Comprehensive Safety» by Fundación MAPFRE Estudios, perhaps the most complete collection on comprehensive safety undertaken in Spain and which covers all of the types of safety mentioned.

SOLVENCY II DEFINES OPERATIONAL RISK AS A DERIVATIVE OF THE INADEQUACY OR THE MALFUNCTION OF INTERNAL PROCESSES, PERSONNEL AND SYSTEMS, OR OF EXTERNAL EVENTS. IT INCLUDES LEGAL RISKS BUT NOT THOSE RISKS DERIVED FROM STRATEGIC DECISIONS OR REPUTATION RISKS

TYPES OF SAFETY AND ENVIRONMENTAL RISKS AND MANAGEMENT DEPARTMENTS

Natural risks	Risks of legal non-compliance (Data protection, private security law, fire protection regulations etc.)
Technological risks (fire)	Others: Biological risks, occupational risks
Anti-social risks	Self-protection and emergency planning
Information and systems risks	Business continuity planning
Environmental risks	

Source: prepared by author

include these risks within Occupational Health and Safety[5].

In view of the nature of these risks and to answer the question raised, it is necessary to ask how they can affect a company.

In this sense, there can be no doubt that their effect on companies can be decisive and that deficient management of them can lead to irreparable damages. By way of example, consider that, statistically, fire is the risk with the highest probability of leading to a company´s disappearance. And, in terms of their future evolution, no one would doubt the importance of a terrorist attack or the kidnap of a director. Similarly, one cannot ignore that the risks related to information and systems are very frequent and especially damaging. The breakdown of the information systems can bring a company or part of the business to a standstill if the risk is not well controlled.

THERE IS NO DOUBT THAT DEFICIENT MANAGEMENT OF SAFETY AND ENVIRONMENTAL RISKS CAN LEAD TO IRREPARABLE DAMAGES FOR THE COMPANY

One should also consider that almost all of these risks, in addition to property or personal losses, however small they might be, are going to imply damage to image which can sometimes be difficult to repair.

All of this makes us consider that we are dealing with risks that are very important and decisive for the development of the company.

In view of the above, and bearing in mind that the objective of Solvency advocates the comprehensive management of «all risks, present and future, that affect the insurer», it is clear that this need for efficient management is also applicable to safety and environmental risks whose responsibility lies within the Safety departments.

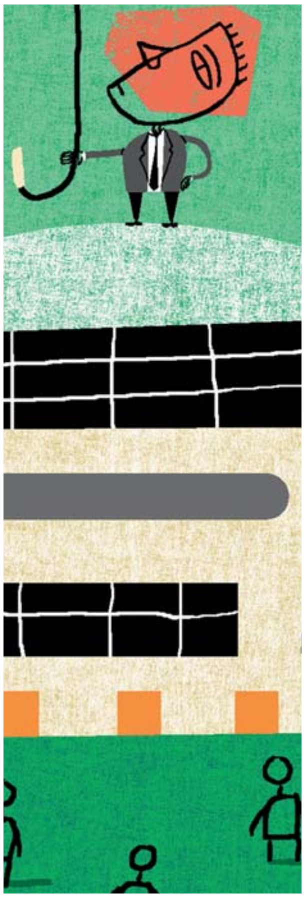
Having established the need to manage safety and environmental risks together with all the other risks that come under the umbrella of Solvency and Basel, its framework into the categories or risk departments that have to deal with the management function can only be within operational risks.

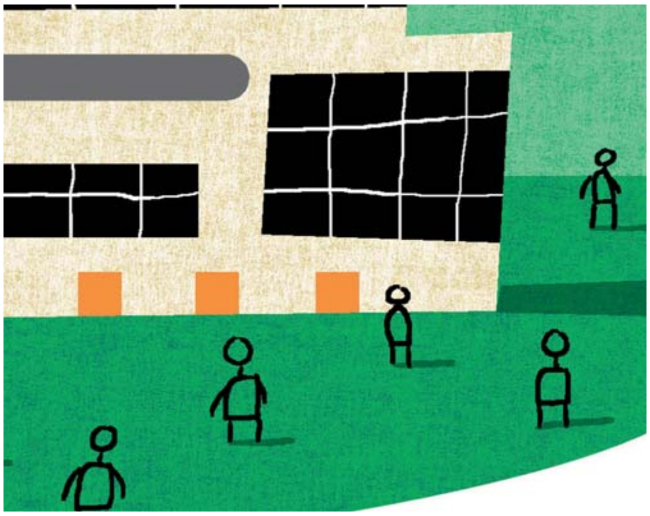
In this sense and as we have seen, many of the operational risks specified by Basel (internal fraud, job security, damage to material assets, fraud, business iIncidences, system failures) can be included within the safety framework. Nevertheless, and despite this reference, the regulation is limited when referring to all of the safety risks, within the operational ones.

CORRELATION BETWEEN THE OPERATIONAL RISK AREAS (ACCORDING TO BASEL) AND THE SAFETY AREAS, WITH THEIR POSSIBLE EFFECTS ON THE COMPANY

BASEL II	SAFETY AREA	EFFECT ON COMPANY
Internal fraud Client, products and business practices	Asset security Fire protection Data Protection Law Emergencies Terrorism Environment Natural risks Business continuity	Loss of assets Loss of business and opportunities Labour disturbances
Labour relations and safety in the work place	Safety of persons (against risks of aggression, kidnap, threats, personal theft or robbery etc.) Natural risks Environment	Loss of assets Loss of business and opportunities Labour disturbances
External fraud and incidences in the business and system failures	Attacks on information	Loss of assets Loss of business and opportunities Labour disturbances

Source: prepared by author





ANALYSIS OF THE CURRENT SITUATION REGARDING THE MANAGEMENT OF SAFETY AND ENVIRONMENTAL RISKS AND THEIR RELATIONSHIP WITH OPERATIONAL RISK MANAGEMENT

Risk management in the area of Safety

Regardless of the existence or not of a well-established model of management in the organization and in response to their principal function inside the company, Safety organizations have concentrated on the effective control of these risks by means of the implantation of preventative and reactive safety measures.

Although it is true that management, as a complete process, still does not have a significant penetration in the area of safety, one should recognize the ground made in respect of identification and risk analysis, such as the milestones necessary to carry out an effective and efficient control of the same.

With regard to the evaluation of these safety risks, in general, one finds the same problems as with the other operational risks; basically the difficulty in their quantification. Despite this, in the field of safety there are more or less scientific evaluation methodologies which have been developed more in their theoretical aspects than their practical application and with a large subjective bias. All of which means that their practical application is very limited.

One should not lose sight of the fact that, in addition to the phases already mentioned, a safety and environmental risk management process should contemplate a decision making phase that enables the possibility of deciding between the suitability of adopting control measures, risk transfer or even the possibility of bearing the risk.

Logically, to close this cycle, it is necessary to evaluate costs and risks, including the evaluation of the assets, as a condition sine qua non to calculate the possible damage.

The transfer of safety and environmental risks

The possibility of transferring risks has been mentioned. Certainly, a management process of any value should also include this phase and, therefore, it is necessary to consider the possibility of insuring or of transferring the safety and environmental risks by means of some mechanism.

Nevertheless, if one analyzes the risk management that is undertaken in the safety area, it is

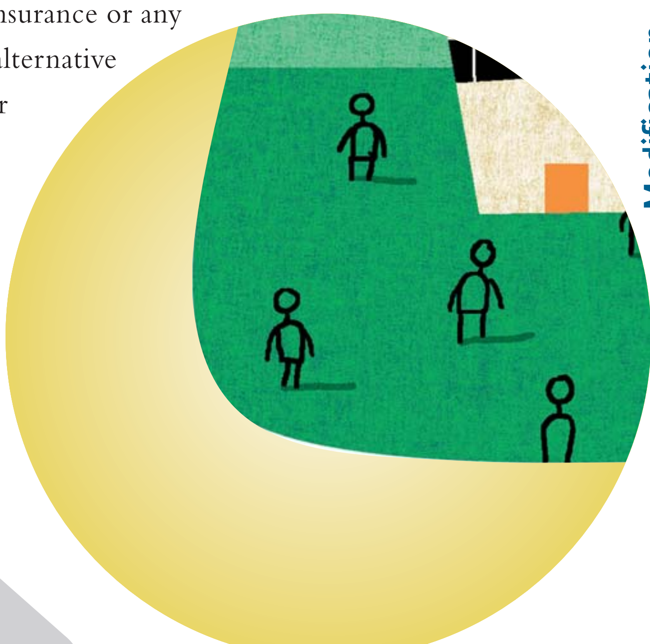
[6] Even at the risk of personalizing, it should be mentioned that MAPFRE has a unit that deals with the transfer of insurable property risks within its Safety and Environmental division.

easy to conclude that they are completely unsuitable for transfer, apart from notable exceptions[6].

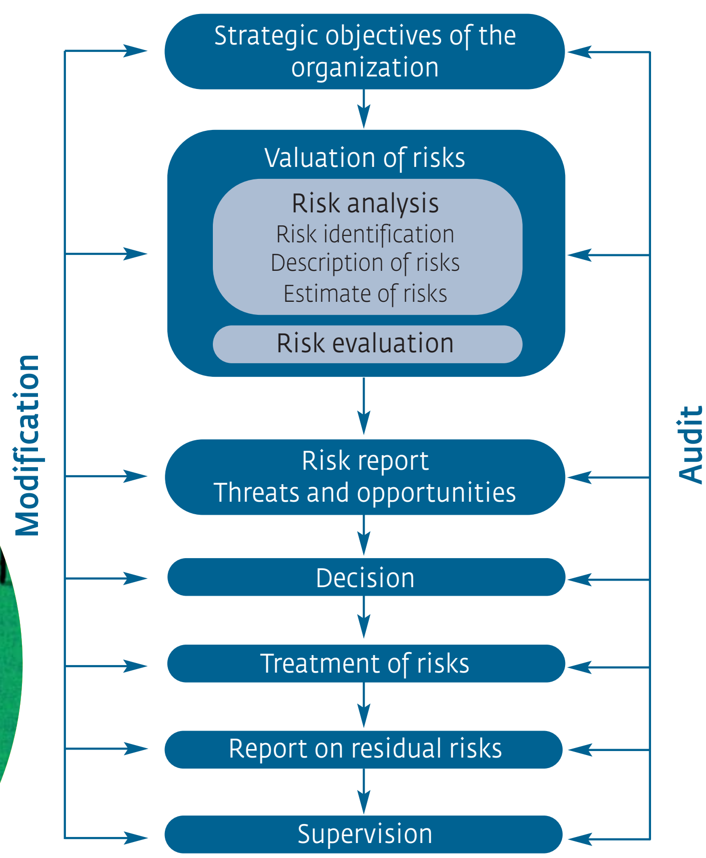
To carry out this function, it is necessary to have personnel specialized in risk management, not normally found in the safety department. On the other hand, this problem can be easily solved by incorporating persons with this professional experience or by accessing the expertise from other departments in the company.

Whatever the solution adopted, it must be emphasized that any complete risk management process must include transfer. And, on the other hand, to achieve an optimum and effective transfer of the safety and environmental risks, it must be incorporated within the management process.

The latter statement is made considering the close relationship that must exist between the Safety departments, as authentic experts in the risks of safety, and those who, whether from inside or outside the company, have the responsibility for their insurance or any other alternative transfer method. As an example, in general and from the methodological point of view, it is not possible to conceive transfer without risk evaluation and so it is necessary to use a expert or, in our case, the Safety department. It should also be borne in mind that the adoption of preventative control measures can have a direct effect on the insurance, modifying the premium, and similarly, another repercussion can be the reduction in the number of claims. The work undertaken on safety is decisive in these aspects.



RISK MANAGEMENT PROCESS



Source: FERMA. Management Standards.

THE MANAGEMENT OF OPERATIONAL RISKS IN COMPANIES IS USUALLY INCLUDED WITHIN THE MANAGEMENT OF ALL OTHER RISKS, CLOSE TO THE FINANCIAL AND ECONOMIC DEPARTMENTS OR EVEN THE AUDIT DEPARTMENT

Brief outline of the relationship between operational and safety risk management

If one analyses the way in which management of operational risks has been carried out, the following can be extracted:

The management of operational risks in companies is usually included within the management of all other risks, close to the financial and economic departments or even the audit department.

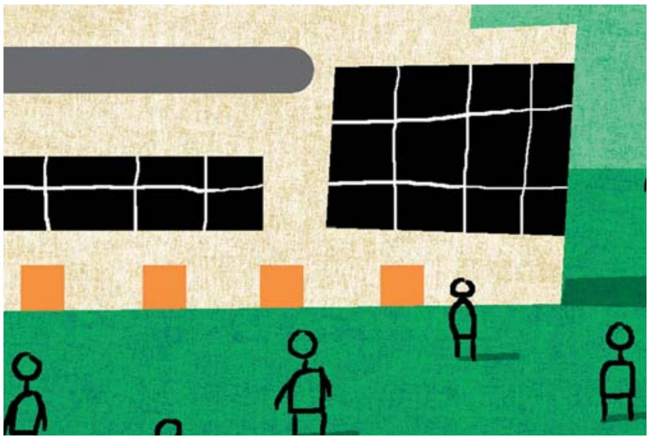
In accordance with its own concept, operational risks usually include those derived from Administrative Management, Human Resources, Committees, Commercial Management, Customer Services, Technology, etc. Within these, it is not normal to include safety risks, at least to their full extent, or even those of the environment; just mere references in the risk questionnaires, especially in respect of information risks. And it is definitely not usual to include them within the management of all operational risks via the established management processes.

The above is somewhat contradictory if one takes into account the importance of these safety and environmental risks and the legal need to control all these risks in an integrated way within the scope of this analysis.

The management that has been traditionally carried out of these other risk areas is even less considered, in favour of authentic integrated risk management required by the regulation and the optimization of resources that includes taking advantage of synergies between the different risk management areas.

It is true that the departments responsible for risk management in large companies are aware of the situation and the importance of these risks. One can ask, therefore, why their relationship with the safety departments tends to be limited to mere occasional cooperation without going so far as to undertake authentic management processes also for the safety and environmental risks and without including them within the management of rest of the company´s risks.

The answer can be for several reasons. On the one hand it can be caused by the lack of knowledge that there is in the company in general concerning its own safety departments; this is also contributed to by the necessary confidentiality that surrounds many of the matters relating to safety, together with the fact that they are very specific and, generally, serious risks which means that they are treated by



ALTHOUGH SOLVENCY II ESTABLISHED THE NEED TO HAVE RELIABLE AND ADEQUATE STATISTICS FOR CARRYING OUT RISK CALCULATIONS, THE REALITY IS THAT, IN GENERAL, RELIABLE STATISTICS OF THE MAIN OPERATIONAL RISKS ARE NOT AVALAIBLE

very specialized and perhaps narrow minded staff. But, curiously, on the other hand, these same characteristics can almost be applied to those departments responsible for risk management. The result is that the possible cooperation between these departments, which are functionally separate, can be difficult a priori and almost «contra natura». These difficulties will have to be overcome for the sake of cooperation necessary to manage risks adequately.

CONSIDERATIONS FOR REAL INTEGRATION OF RISKS

It seems clear that it is necessary to unite efforts and take advantage of the synergies between the different areas with responsibility within risk management in companies and try to achieve an effective integrated management, overcoming the functional difficulties and any others that make this cooperation difficult.

As it has been seen, Solvency establishes the need for a risk management policy. To introduce this policy and make it applicable to all areas of risk, a necessary requisite is to implement a management process that is coherent with business principles and the appeal for risk in the organization.

On the other hand, it can be observed that many of the normal risk management terms, whether in the financial, business, operational or safety areas, do not respond to the same concepts. This situation provokes certain confusion, making it difficult to establish common criteria and procedures. It is important to unify conceptual criteria at least within the same organization and it is desirable that this unification should reach higher levels and extend its application to the whole sector. Of course, the ideal situation would be for a common language to be used in the risk management field.

Procedures to evaluate the operational risk to its full extent are not available

The Directives do not establish specific criteria to carry out this evaluation; an evaluation that, on the other hand, they consider to be essential.

In the world of risk management in general, it is not easy to find generic models for undertaking a quantitative evaluation of the operational risk.

This situation leads to considering the need to take on or study in depth or design evaluation procedures for the operational risk to its full extent, which should include the quantification of the risk as far as and when possible.

Databases of incidents derived from the operational risk

Solvency also established the need to have reliable and adequate statistics for carrying out risk calculations. But the reality is that, in general, reliable statistics of the main operational risks are not available.

It would be advisable for these databases to be made available, both at the level of the insurance company sector and at a wider or inter-sector level.

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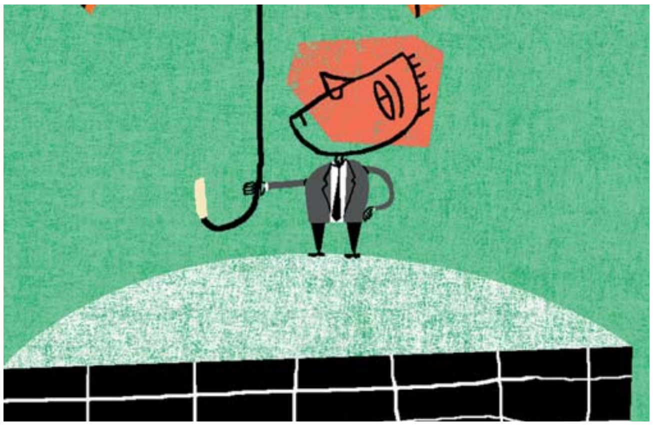

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Gerencia de Riesgos y Seguros

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