Risk Management in Aviation

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Contents

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Summary

- Risk Management is an ongoing process based on a systematic collection and analysis of all relevant risks for a company.
- Aviation companies are particularly exposed to risks and must lay special emphasis on a comprehensive Risk Management.
- The quality of Risk Management is extremely dependent on the enterprise culture; an efficient Risk Management starts at a board level.
- In the operational area the Corporate Risk Management may be complemented and optimised by an integrated Safety Management System.
- Risk Management is always opportunity management too.
- For aviation companies it is recommended to consider a D&O-Insurance.

Risk Management is a process based on the systematic collection and analysis of all relevant risks facing a company. Risks are particularly present in the aviation industry, and therefore necessitates a special emphasis on a comprehensive Risk Management. The quality of Risk Management is shaped by the enterprise culture and starts at a board level. By integrating a Safety Management System, the operational area of Corporate Risk Management can be further improved. It is important to realise that Risk Management is opportunity management too, where potential improvements need to be actively identified. For aviation companies it makes sense to evaluate a Director's and Officer's Insurance (D&O) to insure the management against any financial liabilities resulting from damage claims. However, these are expensive and require a time-consuming evaluation.

13.1 Introduction

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Risk Management is not a new subject, neither for individuals nor for companies. Risk Management for individuals means the execution of certain actions, providing them with increased control over future events and a confidence to move forward with their interests intact, despite the uncertainty of events ahead (Kalia & Müller, 2019). What is new is the number of legal regulations for Risk Management in enterprises.

In an enterprise, several individuals work together. This already leads to a bundled wish for increased control over the future and risks. In addition, the performance of an enterprise has direct or indirect effects not only on the employees but also on the owners, customers, suppliers and other stakeholders. They all want the enterprise to know their risks and take corresponding mitigation actions. Especially in the aviation industry, operators, pilots and passengers have a greater need for safety and security based on an efficient Risk Management.

All enterprises are confronted with risks. Unfortunately, risks are often recognised too late, so that neither enough time nor adequate measures are available to prevent the resultant damage from the realisation of the risk potential. To prevent this, every far-sighted enterprise management should aim to recognise pos-

sible risks and minimise the most dangerous amongst these as far as possible through adequate strategic or surgical measures. Therefore, consciously or unconsciously, every enterprise management pursues Risk Management as a rule (Kalia & Müller, 2019).

Unfortunately, even the best Risk Management System cannot guarantee that all risks are recognised, correctly assessed and appropriately mitigated. In particular, the so-called Black Swan risks, which no one thinks about at all, can suddenly appear and lead to incidents or even accidents. Nevertheless, it is worthwhile to devote sufficient attention and resources to risk management in order to increase the scope for action. At the same time, risks should also be understood as opportunities or chances, as the following case from practice shows.

Mini Case: Risk of Helicopter Crashes at Swiss Rescue Service (REGA) as an Opportunity or Chance for New Revenue Sources

(Rega 2013 with Annual Report 2012. Real flight training – but not in the air. *Swiss Rescue Service Zurich 2013*, 9.)

Rega (Swiss Rescue Service) currently operates 18 helicopters. These are used not only during the day, but also at night and in IMC. The 11 AgustaWestland Da Vinci helicopters are also used in the mountains in difficult weather conditions. It is therefore not surprising that Rega's Master Risk List originally rated the risk potential of helicopter crashes as very high.

The following reasons were identified as the causes for this risk:

- Technical deficiencies
- Operational deficiencies
- Operations with increased risk (weather, night, mountains)
- Human errors
- Inadequate training
- Cause in Crew Resource Management (CRM)
- Lack of risk analysis
- Hasty actions

The Executive Management examined already in 2011 all possible measures to mitigate this risk as part of the individual risk processing. Finally, the following list emerged:

1. Training, living and complying with safety culture guidelines
2. Challenging selection of new pilots
3. Training and CRM
4. Regular training and checks
5. Regular audits
6. Introduction of Safety Management (SMS)
7. Train pilots according to Instrument Flight Rules (IFR)
8. TCAS and Flocie retrofitting
9. Simulator training

In 2011, however, there was no simulator for the Agusta Westland Da Vinci mountain helicopter. The construction and certification of such a new simulator was offered by Agusta Westland at the price of almost two new helicopters. Rega's Foundation Board therefore discussed intensively whether it would really be worthwhile to purchase such an expensive simulator just to mitigate the risk of helicopter crashes. Finally, however, the purchase of a simulator was approved. The annual report 2012 states: "Highly trained crews are crucial for the safety and success of rescue flights. That is why Rega is investing in a simulator for the AgustaWestland Da Vinci helicopter. In addition to 'regular' flight training, it will also be possible to practise accident scenarios realistically and efficiently in the simulator without danger, noise or polluting the environment. ... All Da Vinci helicopter pilots, as well as the paramedics making up the cockpit crew, will complete up to eight training exercises in the simulator every year".

In fact, the pilots and crew members were trained in the simulator for around 600 hours each of the following years. But a simulator can easily be used for up to 2500 hours per year. Rega's Executive Management therefore rented out the simulator to helicopter operators on oil platforms, in particular, during the operating hours that were not required. The rental income ultimately covered the costs of purchasing the simulator very quickly. Since then, the simulator has become an additional source of income for Rega. The risk of a helicopter crash has thus become a real opportunity or chance for Swiss Rescue Service.

13.2 Importance of Risk and Safety Management in Aviation

Aviation systems are characterised by a huge number of complex interactions and interdependencies among stakeholders as well as disastrous consequences in case of an accident. Hence, safety and risk management has accompanied aviation since the early days. What has changed over the last decade is the way how safety in aviation is managed. Safety in aviation can be measured by the number of injured passengers in relation to the flown kilometres. Flying has become the safest industry worldwide with a current ratio of 0.14 casualties per one billion flown kilometres; in other words: a passenger has to fly for 10,297 years each week from Zurich to New York to experience an accident in theory (Maggi, 2009). Given the estimated worldwide air traffic of about 39,000,000 flights, the accident rate is one fatal accident per almost two million flights (Aviation Safety Network airliner accident statistics, 2019). Despite this convincing numbers, all stakeholders in Aviation still concentrate on further improvement of aviation safety.

Technical progress and globalisation triggered and immense growth of the aviation industry, especially between 1944 and 2001. International and national aviation authorities developed minimum safety standards, which led to numerous safety guidelines and regulations. The recent amendments of the International Civil Aviation (ICAO) Annexes 6, 14 and especially 19 (safety management in

Fig. 13.1 Nexus of risk management and safety management systems. (Author's own figure)

2013, 2nd ed. 2016) have established the obligation for Aviation Service Providers to introduce a Safety Management System (SMS). Therefore, several consultancies offer special services in Risk and Safety Management Systems to aviation industries (e.g. AeroEx in Buchs SG, www.aeroex.eu).

The subject Corporate Governance is important for all companies (small, medium or big, family held or stock quoted, private or public). One recommendation in the leading codes of best practice for Corporate Governance is the implementation of a Risk Management System (RMS). The actual UK Corporate Governance Code (Financial Reporting Council, 2010) demands in chapter A.1: the board of directors has to control that the systems of risk management are robust and defensible. In addition, UK Financial Services Authority (FSA) Rule 7.2.5 requires companies to describe the main features of the internal control and Risk Management Systems in relation to the financial reporting process.

The overall risk management in the context of Corporate Governance has to be distinguished from the focused operational risk management in aviation. It is therefore helpful to speak of "Corporate Risk Management" if the overall approach in the sense of Corporate Governance is intended. A part of Corporate Risk Management is the Internal Control System (ICS). The ICS is one of the key management instruments and is defined by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) as a process effected by an organisation's structure, work and authority flows and people and management information systems. It is designed to help the organisation accomplish specific goals or objectives.

The challenge for the aviation industry is to combine the Corporate Governance Risk Management with the Safety Management System. The SMS includes the process of hazard identification (HAZID) based on the standards and recommended practices (SARPs) of ICAO. The experience of successful aviation companies leads to the conclusion that the SMS should be based on the Corporate Risk Management without touching the aspects of internal controlling as follows (Fig. 13.1):

Research by the Board Foundation (International Board Foundation, n.d.) showed that one of the main mistakes made by the Management Board was an insufficient or missing risk management. That is why risk management assumes a key significance in the area of corporate governance (Müller et al., 2014). The 10 most common and important mistakes and deficiencies at a board level are listed as follows (▶ Box 13.1):

Box 13.1 Mistakes and Deficiencies at Board Level (Kalia & Müller, 2019)

1. Wrong structure and insufficient qualification of the Board of Directors (BoD), particularly concerning the function of the Chairman combined with the absence of the non-executive Board members.
2. Board members are not sufficiently prepared and do not have the necessary overview.
3. Board decisions are influenced by conflicts of interests supported by insufficient internal regulations.
4. Missing or insufficient strategy identifications and strategy control.
5. Missing or insufficient risk management, particularly concerning liquidity planning and succession regulations.
6. Low frequency of board meetings, so that the Board of Directors can only react to changes and events instead of being proactive.
7. Unsatisfactory provision of information and information evaluation, by insufficient or delayed reporting to the Board of Directors in particular.
8. Delayed or incorrect decision making, according to incomplete decision documents in particular.
9. Insufficient cooperation between Board of Directors and Executive Management, in particular unclear allocation of duties and competence.
10. Absence of periodic evaluation of the Board members and Executive Management; inefficient Board and Executive Board members are replaced too late.

13.3 Definitions in Risk Management

Hazard

» A hazard is generically defined by safety practitioners as a condition or an object with the potential to cause death, injuries to personnel, damage to equipment or structures, loss of material or reduction of the ability to perform a prescribed function. For the purpose of aviation safety risk management, the term hazard should be focused on those conditions which could cause or contribute to unsafe operation of aircraft or aviation safety-related equipment, products and services. (ICAO, 2013)

Hazard Identification

Hazard identification (HAZID) is the process of identifying hazards, which forms the essential first step of a risk assessment (ICAO, 2016). There are two possible purposes in identifying hazards: to obtain a list of hazards for subsequent evaluation using other risk assessment techniques (failure case selection) and to perform a qualitative evaluation of the significance of hazards and the measures for reducing the resulting risks (hazard assessment).

Risk

Risks are unforeseen deviations from the expected values caused by accidental interferences deriving from the unpredictability of the future (Gleissner & Romeike, 2005). The ratio between the probability of occurrence and the expected measure of damages is referred to as individual risk (Müller et al., 2014). Besides the negative implication of risk, risk management is always a balancing act between risk opportunities and threats.

Risk Management

Risk Management means the permanent and systematic recording of all kinds of risks with regard to the existence and the development of the enterprise; it involves analysing and prioritising recognised risks, as well as defining and implementing adequate strategic or surgical measures to minimise non-tolerable risks (Kalia & Müller, 2019). The overall strategy, the crisis management and the regulation of damages are not part of the Risk Management.

Safety

The state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management (ICAO, 2016). In the context of SMS, the ICAO manual defines the feasible and acceptable level of safety as ALARP (as low as reasonably possible). The SMS's primary aim is to reduce its risk to an acceptable level of safety (ALOS) defined by the Civil Aviation Authority (CAA). Risk cannot be reduced to zero; therefore, the risk is measured against an acceptable level of safety.

Safety Culture

Safety culture is the set of enduring values and attitudes regarding safety issues, shared by every member at every level of an organisation. Safety culture refers to the extent to which every individual and every group of the organisation is aware of the risks and unknown hazards induced by its activities, is continuously behaving to preserve and enhance safety, is willing and able to adapt itself when facing safety issues and is willing to communicate safety issues as well as consistently evaluates safety related behaviour (ECAST, 2010).

Safety Management System

Safety Management System (SMS) can be characterised by a "dynamic Risk Management System based on quality management principles in a structure scaled appropriately to the operational risk, applied in a safety culture environment" (Stolzer et al., 2008). One important part of SMS consists of the (proactive) identification of potential hazards, linking them to realistic consequences and evaluating them with a probability and severity of impact. Secondly, SMS includes the whole process of safety assurance by a performance based monitoring of the implemented mitigation actions and a periodical reassessment of the safety situation. Safety Management's aim is to establish an organisational safety culture. It

also includes appropriate Safety Training. The SMS is not a substitute for compliance with regulation and has the necessary infrastructure, facilities, working procedures and competent personnel.

- **Security**

Security must be distinguished from safety. According to the regulation 300/2008 of the European Parliament "aviation security" means a combination of measures and human and material resources intended to safeguard civil aviation against acts of unlawful interference that jeopardise the security of civil aviation. Further, "security control" means the application of means by which the introduction of prohibited articles may be prevented.

13.4 Implementing a Risk Management System

13.4.1 Integration in Corporate Governance

Until about 1970, risk management had been focused on financial risks, especially the risk of debtor losses. In the next 10 years, the risk range was extended with operational risks. In the last decade of the century, 2000 market and liquidity risks had been added to the risk frame. Only at the beginning of this century, corporate governance completed the risk radar (◘ Fig. 13.2):

The Risk Management process does not have its own dynamics; it should therefore be integrated in the internal and external audit and strategy process. Objectives flow from strategy into the Risk Management process; the results of the risk considerations are not only important for the priorities of the Audit plan, but also for the SWOT analysis in the strategy process (Boutellier & Kalia, 2006).

◘ **Fig. 13.2** Risk radar for corporate risk management (Kägi & Pauli, 2003)

One of the important ways to complete the link between strategy and Risk Management is to have a feedback loop from the Risk Management function to the strategy function. This is normally not done (and if done at all, this occurs implicitly through reporting mechanisms); doing so, however, provides a clear picture of how the risks and Risk Management have performed in terms of achieving strategic objectives. This will facilitate integrating information also from the subsidiaries and divisions into the next strategy and Risk Management cycle. To do this, a brief proposal should be provided by the Risk Management function to the strategy implementation function for the beginning of the next strategy implementation cycle. The risk feedback from the subsidiaries could have clear and important implications for the strategy process (Kalia & Müller, 2019).

13.4.2 Ten Steps for the Implementation of a Corporate Risk Management

The introduction and implementation of a risk management in an aviation enterprise can be carried out according to the following steps (Müller et al., 2014):

1. Determine the risk organisation and nominate a project manager
2. Collect all possible risks by SWOT analysis and questionnaire
3. Determine the relevant risks and evaluate by risk assessment
4. Creating a Master Risk List with priorities
5. Decision on a risk policy by the Board of Directors
6. Check possible measures to reduce the important risks including insurance evaluation
7. Definition of specific mitigation measures with the corresponding budget
8. Introduction of a risk reporting system
9. Analysis of accidents and incidents under the view of new risks
10. Periodic review of the organisation, the process and the Master Risk List

The risk organisation can be determined in three different ways. The Board of Directors can carry out the duty alone. For small companies this is an appropriate solution. In bigger companies the task should be delegated to the audit committee or to a special risk management committee. But even with such a delegation, the Board of Directors remains responsible for the process and for the information given on the subject in the annual report.

The SWOT analysis includes actual risks for the business, but this collection is never complete. Therefore, it is necessary to question all employees with a special questionnaire. Directors and officers have to answer the question in the same way. This bottom-up and top-down approaches furnish the best results. The Swiss Air-Rescue Rega collected a total of 520 risks in the year 2007 from its employees. After the first evaluation, 350 relevant risks remained and were further judged in a risk assessment according to the following matrix (Müller et al., 2014) (Table 13.1):

Table 13.1 Risk potential evaluated by a risk assessment (Müller et al., 2014)

Catastrophic	> 50 Mio.	5	10	15	20	25
Critical	> 5 < 50 Mio.	4	8	12	16	20
Moderate	> 0,5 < 5 Mio.	3	6	9	12	15
Small	> 0,05 < 0,5 Mio.	2	4	6	8	10
Insignificant	< 0,05 Mio.	1	2	3	4	5
	Criterion	< 1 per 100 year	> 1 per 100 y. < 1 per 10 y.	> 1 per 10 year < 1 per 1 year	> 1 per year < 1 per month	> 1 per month
Potential		Practically impossible	Unlikely	Possible	Occasionally	Often
Zone 1		Risk not acceptable, actions to mitigate risk are urgently required				
Zone 2		High risk, actions to mitigate risk are required				
Zone 3		Medium risk, actions to mitigate risk are to be considered				
Zone 4		Small risk, no additional actions to mitigate risk are required				

The risk assessment classifies the identified risks based on probability and impact. It suffices to judge the risks appropriate to the organisation. The focus of the risk assessment lies in the risk perception, and not in the exact estimates of the probability. It is suggested to use a five-by-five matrix to display the risks in an overview. For risks with an advance warning time, the use of a surprise factor may be appropriate (reduction of the probability by the multiple 1). As an example for the outcome of a risk assessment, the first part of the Master Risk List of a regional airport is shown below. The top risk is an income subject and the second rank is a security issue, both huge problems of airports (Schulz et al., 2010) (Table 13.2).

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As part of the risk management strategy, the Board of Directors sets the risk management strategy based on the risk policy and decides for each risk whether it is acceptable or not. Furthermore, the Board defines the appropriate mitigation strategy. The mitigation process has to be supervised and controlled. Therefore, it helps to define key performance indicators (KPIs) or other measurable indicators to supervise the implementation process.

Risk Management is not a one-time achievement but a steady and ongoing process. Therefore, the Board of Directors and the Executive Board should at least review the whole risk management process and the top 10 risks on the updated Master Risk List on a yearly basis. This may also include risk-reporting possibilities (Kalia & Müller, 2019). In conclusion, a mature Risk Management System, in contrast to an ad-hoc Risk Management System which only aims to comply with legal standards, is an important factor for the success of an aviation enterprise. Risk management has to become a part of the company's culture in order to unfold its full potential.

Table 13.2 Master risk list of a regional airport

Risk title	Risk description	Probability	Impact	Potential	Rank
Reduction of passenger numbers	Airlines cancel rotations because of financial problems or because of a pandemic	3	4	12	**1**
Attack	Sabotage or terror attacks	2	5	10	**2**
Withdrawal of licence	Withdrawal of operating permit for political of regulatory reasons	2	5	10	**3**
Aircraft accidents	Accident of airliner or chartered aircraft	2	5	10	**4**
Lighting	Accidents are caused by missing or weak lighting on runways or airfields	3	3	9	**5**
Obstacle clearance	Construction within the obstacle area cannot be prevented for the lack of eminent domain	3	3	9	**6**
Towing risk	Accident at the tow of big aircrafts or many parked aircrafts	3	3	9	**7**
Aircraft stairway	Accident of a passenger leaving the aircraft on an unsuitable stairway	3	3	9	**8**
Static tests	Accidents resulting from static tests	3	3	9	**9**
Static test areas	Prohibition of static tests without measures against acoustic noise	3	3	9	**10**
Market risks	Higher costs/lower revenues	3	3	9	**11**
Collision of vehicle with aircraft	Collision of vehicles with aircrafts on tarmac or taxiway	3	3	9	**12**
Damages to persons	Damages to persons on tarmac (passengers, employees, suppliers)	3	3	9	**13**
Confusion of the type of fuel	Filling with the wrong type of fuel	2	4	8	**14**
Fuel tank	Detonation of fuel tank	2	4	8	**15**
Animals	Accidents due to animals on the runway	2	4	8	**16**

(continued)

Table 13.2 (continued)

Risk title	Risk description	Probability	Impact	Potential	Rank
Helicopter landing pad	Helicopter collides with fuel station and causes detonation	2	4	8	**17**
Case of fire	Case of fire in the administrative building, terminal or hangar	2	4	8	**18**
Constraints of the Federal Office of Civil Aviation (FOCA)	Non-compliance with the constraints of the FOCA either leads to limitations imposed by national or local legislation or to accidents	2	4	8	**19**
Fire brigade	In the event of an accident not enough staff or material is available according to regulations	2	4	8	**20**
Runway conditions	Accident due to inadequately maintained runways	2	4	8	**21**
Personnel gaps	Personnel gaps without representation or without licence leads to business interruptions	3	2	6	**22**
Jet blast	Accidents resulting from jet blast at the end of the runway	3	2	6	**24**
Vandalism	Devastation caused by airport opponents or dismissed employees	3	2	6	**26**
Working atmosphere	Operational failure due to strike or accident caused by violation of regulations	2	3	6	**27**
Taxiway conditions	Accident due to inadequately maintained taxiways	2	3	6	**28**
Fuel leakage	Leakage of fuel from aircrafts or fuel tanks	3	2	6	**29**
Collision with tank lorry	Collision of a tank lorry with aircraft	2	3	6	**30**

Table compiled by author

13.4.3 Safety Management System Based on Corporate Risk Management

Safety concept in aviation may have different purposes, for example (ICAO, 2016):

- Zero accidents or serious incidents
- Freedom from hazards
- Attitudes of employees of aviation organisations towards unsafe acts and conditions
- Error avoidance
- Regulatory compliance

Whatever the purposes are, they all have one underlying commonality: the possibility of absolute control. Zero accidents, freedom from hazards, and so forth, convey the idea that it would be possible to bring all variables that can precipitate bad or damaging outcomes under control. However, while the elimination of accidents and/or serious incidents and the achievement of absolute control are certainly desirable, they are unachievable goals in open and dynamic operational contexts. Hazards are integral components of operational contexts in aviation. Failures and operational errors will occur in aviation, in spite of the best and most accomplished efforts to prevent them. No human activity or human-made system can be guaranteed to be absolutely free from hazards and operational errors (ICAO, 2016).

Safety is therefore a concept that must encompass relatives rather than absolutes, whereby safety risks arising from the consequences of hazards in operational contexts must be acceptable in an inherently safe system. The key issue still resides in control, but relative rather than absolute control. As long as safety risks and operational errors are kept under a reasonable degree of control, a system as open and dynamic as commercial civil aviation is considered to be safe. In other words, safety risks and operational errors that are controlled to a reasonable degree are acceptable in an inherently safe system (ICAO, 2016). Safety Management exists since the early days of aviation. What has changed over the years is the way we handle them. Where risk management was once done by a "fly-crash-fix-fly" approach, Safety Management nowadays tries to deal more intensely with the complexity of an aviation system. The ICAO manual illustrates this with a good example: when one leans on a windowsill, there is the danger of pushing the flowerpot out of the window. In this case, the traditional approach in Safety Management would lead to reminders about being careful when leaning on windowsills. Current Safety Management would result in an installation of a containment net under the window (ICAO, 2016).

Relevant for the implementation of SMS are the standards and recommended practices (SARPs). They can be found in the ICAO annexes 6, 11, 14, 19 and in the ICAO Safety Management Manual. So far, no European regulation concerning the introduction of SMS exists. However, the EASA stated its intention to translate the SMS related provisions in ICAO Annex 6 into upcoming rulemaking proposals. Until now, only EU-OPS 1.037 exists, which defines an accident prevention and flight safety program consisting of a risk awareness system, reporting system, eval-

uation of accident information and a flight data monitoring program for airplanes heavier than 27,000 kg maximum take-off weight. Furthermore, every organisation needs to have a person accountable for managing the program (EU-OPS, Council Regulation No. 3922/91). Despite the fact that EASA concluded that EU-OPS is consistent with the major principles of the ICAO SMS, the EASA already placed a notice of proposed amendment (NPA). The NPA-2008-22c mainly contains the ICAO standards with more detailed requirements for small operations.

13.5 Director's and Officer's Insurance

Rising awareness for issues related to Corporate Governance among authorities, the media and shareholders, as well as a growing number of liability occasionally supported by litigation finance companies, lead to an increasing demand for adequate insurance cover for members of the strategic and operational management levels. This shall insure them if they should become subject to civil action for damages. In the English-speaking world, the Director's and Officer's Insurance was established for this purpose. Initially, it was argued that this kind of insurance would make institutions rely on the insurance coverage, and therefore neglect their own duties. Within a short period of time, it became evident, though, that even D&O-Insurances provide only a limited degree of protection, and that it is still imperative for institutions to carry out their duties diligently. However, these insurances have contributed to the fact that liability claims are brought in front of court more frequently than in the past.

In view of the many risks in aviation enterprises, the Board of Directors should evaluate the possibility, the costs and the advantages of a D&O-Insurance in connection with risk management. Concluding a D&O-Insurance contract is far from easy and a time-consuming affair. The insurers request detailed information via extensive questionnaires, plus miscellaneous business documents. If existing risks are not disclosed, the insurance will not cover related claims. The terms of policy as well as the determination of insurance coverage differ between various insurance companies. It is recommended to consult a specialist insurance broker in D&O-Insurance and compare different offers.

All D&O-Insurances are based on the "Claims-Made-principle". Only those damages that are claimed during the policy period are covered. A pre-risk coverage covers damages which were caused before the start of the policy, but which are claimed within the term of the insurance. This type of insurance generally exists, if the damage or the consequent claim was unknown at the time the insurance was taken out. In principle, those claims that are asserted after the insurance has expired – and the insurance had not been renewed – are not covered. This is true even if the damage was caused during the policy period. In this case, an extended reporting period of 1–3 years can be purchased. However, this special cover has to be agreed on before the end of the insurance contract. Instances that may lead to a claim can be reported in writing until the insurance expires. If these instances lead to damage claims after the insurance has expired, they will be treated as if they had been asserted at the time of reporting. Importantly, this special cover also needs to be arranged explicitly.

Basically all members of the strategic and operational management levels are insured:

- Members of the Board of Directors and members of the Supervisory Board
- Members of the management board
- Members of the internal company board of control
- Members acting as de facto legal bodies
- According to contractual arrangements the following can also be insured:
- Spouses, heirs and legal representatives of the defendants
- Co-defendant employees
- Board of Directors of third-party companies

All management members of the policy holder are insured. If the policy holder is a holding company, the management members of the company's subsidiaries are also included. A subsidiary in this case is a company of which the holding company directly or indirectly owns more than 50% of the voting rights or owns 20–50% of the voting rights and additionally exercises a dominant influence on the management of the company. Future risks for newly founded subsidiaries or companies that have been taken over are partially covered as well. It is important to note that coverage is not automatically provided to all new subsidiaries. Any agreements on exclusions such as geographical areas included, financial institutions, the size of the balance sheet total, etc., should urgently be looked at.

At first sight, the services offered are comprehensive:

- Damages and costs which are imposed on the Board of Directors and managers
- Defence of unjustified claims
- Assumption of defence costs (experts' and legal costs, which are related to the complaint)
- Consequential loss caused by mass redundancy and severance schemes

In fact, important coverage exclusions and additional individual coverage exclusions, such as financial transactions within the group, are regularly set within the general conditions of the D&O-Insurances:

- Punishable acts or omissions
- Personal injuries and property as well as environmental damage
- Internal liability (company against organs)
- Social contributions
- Demands of a major shareholder (from about 15–20% voting right upwards)
- Liability against the group resulting from vocational guidance
- Crimes of honour and money laundering

Review Questions

- How can Risk Management and HAZID be defined?
- What is the difference between safety and security in aviation?
- How can a risk also be an opportunity or a chance?
- What are the 10 most common and important mistakes and deficiencies of BoD?
- How can a Risk Management System be implemented in an aviation enterprise?
- How can the concrete potential of a risk be evaluated?

- What are the top-rated risks of an airport?
- What different purposes does a safety concept in aviation have?
- Which regulations are important for the Safety Management System?
- Who is protected by a Director's and Officer's Insurance?
- What is not covered by a Director's and Officer's Insurance?

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