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Andreas Wittmer
Thomas Bieger
Roland Müller *Editors*

Aviation Systems

Management of the Integrated Aviation Value Chain

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Editors
Dr. Andreas Wittmer
Prof. Dr. Roland Müller
University of St. Gallen
Center for Aviation Competence
Dufourstraße 40a
9000 St. Gallen
Switzerland
andreas.wittmer@unisg.ch
r.mueller@advocat.ch

Prof. Dr. Thomas Bieger
University of St. Gallen
Institute for Public Services and Tourism
Dufourstraße 40a
9000 St. Gallen
Switzerland
thomas.bieger@unisg.ch

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Editorial Aviation Systems

Globalisation has led to a strongly growing demand in international air transport. This growth was furtherfuelled by the deregulation of the airline sector. Politicians, business leaders, but also individual and institutional customers needed a deeper understanding of the aviation sector. An increasing number of textbooks about the airline sector offer insights into the industry's economics and its management.

This book targets industry managers as well as policymakers and institutional customers of the sector, and in particular students in the field of transport and tourism. It provides an overview on the aviation sector with a special focus on value creation and strategies based on industrial economics. The consequent application of a system view makes it unique in its field. The book draws on the rich tradition of integrated management approaches and the use of system models in management research and teaching in tourism at the University of St. Gallen. The system view and the use of system models help to understand interrelated and interdependent developments, like the consequences of technical progress on regulation and demand.

The authors were fortunate enough to be able to draw on research results of many years at the Institute for Public Services and Tourism and the Center of Aviation Competence at the University of St. Gallen. Therefore, the authors would like to thank all colleagues who contributed to this book by discussions, research contributions, and administrative support, and especially the co-authors Philipp Boksberger, Bert Urfer, Robert Weinert and Jan Vespermann. Special thanks go to our assistants Catherine Baudenbacher, MarlisVernier, Nicole Denk and Margareta Brugger and the language editors Michael Tschapka and Christine Kern who helped to finish this book.

St. Gallen, 1 July 2011

Andreas Wittmer
Thomas Bieger
Roland Müller

Contents

About the Editors

Dr. oec. HSG Andreas Wittmer (1973) is Managing Director of the Center for Aviation Competence and Vice Director of the Institute for Systemic Management and Public Governance at the University of St. Gallen, where he also holds lectures. He is a guest professor at several international universities in the fields of Aviation Management and Economics. He is President of the Swiss Aerospace Cluster and works as a freelance aircraft accident investigator for the Aircraft Accident Investigation Office of Switzerland.

Prof. Dr. rer. pol. Thomas Bieger (1961) has been a full Professor of Business Administration specializing in Tourism since 1999 and is the Director of the Institute for Systemic Management and Public Governance at the University of St. Gallen. He is President of the University of St. Gallen and Chairman of CEMS (Community of European Management Schools). He has held guest professorships at several international universities and was active in the boards of several different companies.

Prof. Dr. iur. Roland Müller is a Professor of Private, Commercial and Aviation Law and President of the Center for Aviation Competence at the University of St. Gallen. He is an attorney and notary public in a law firm and serves in several boards as member or chairman. Furthermore, he is senior partner at the University of St. Gallen's Center for Corporate Governance.

Part III
Steering and Controlling the System of Aviation

Part III
Steering and Controlling the System of Aviation

CONTENT OVERVIEW

Chapter 10
Aviation Governance

Roland Müller

Abstract

- Corporate Governance in aviation is important for the long-term success of all enterprises in the aviation industry.
- Corporate Governance produces a measurable added value for the company itself, for their shareholders and stakeholders.
- Building a talented board of directors in an aviation enterprise is a challenge but the one of the key elements for an efficient steering and controlling.
- Aviation Governance should be established on four levels: situational, strategic, integrated and controlled.

10.1 Introduction

Corporate Governance was for the first time an issue in 1930 after shareholders had experienced the dramatic stock market crash of 1929. It became obvious that shareholders have only a theoretical power. The real power in a company rests with the Board of Directors (BoD). After the publication of the first UK Code for Corporate Governance 1992 the subject had been discussed in a larger circle. Specific recommendations for improving the interaction of shareholders, stakeholders, BoD and Executive Management (EM) were available now.

Today, there exist over 120 Codes for Corporate Governance worldwide and an almost incalculable amount of literature is published on this subject. Even the jurisdiction relating to liability claims against directors and officers were influenced by the debate on this issue. Nowadays, it is clear that even an effective Corporate Governance cannot guarantee the success of an enterprise, but it can support it in an important degree. In particular, the composition of the BoD and the internal regulation of tasks and competencies of the strategic and the executive management are critical factors for long-term success. Corporate Governance is therefore in the complex system of aviation of particular importance.

10.2 Significance and function of Corporate Governance

The term "Aviation Governance" is the shortened form for "Corporate Governance in aviation". Corporate Governance can be defined by a word-for-word translation as "Leading a corporation". But the meaning of this term is much wider. One of the leading experts for Corporate Governance, Sir Adrian Cadbury, summarized the meaning as follows: "Corporate Governance is concerned with holding the balance between economic and social goals and between individual and communal goals. The aim is to align as nearly as possible the interests of individuals, corporations and society." (CADBURY, 1999). Corporate Governance is also a set of relationships between a company's management, its board, its shareholders, and other stakeholders (OECD Principles, 2004); it is the system by which companies are strategically directed, integratively managed, holistically controlled in an entrepreneurial and ethical way, in a manner appropriate in each particular context (HILB, 2008).

In the report of the working group for Corporate Governance in Switzerland the meaning was focused on public shareholder companies: "Corporate Governance encompasses the full range of principles directed towards shareholder's interest seeking, a good balance between direction and control and transparency at the top company level while maintaining decision-making capacity and efficiency." (HOFSTETTER, 2002). In fact Corporate Governance compromises principles for all types of companies even for non profit organisations and for all fields of businesses. Therefore Corporate Governance is also an important subject for the aviation industry.

Codes for best practices of Corporate Governance have been established all around the world, but quite differently from country to country (the European Corporate Governance Institute provides a list of all codes: (www.ecgi.org/codes/all_codes.php). The most important and most relevant countries to consider hereby are the United Kingdom (Cadbury Report, Combined Code), South Africa (King's II Report) and the U.S. (Sarbanes-Oxley Act). In Switzerland economiesuisse published the Swiss Code of Best Practice for Corporate Governance in 2002; the English version has been updated 2007 (ECONOMIESUSSE, 2007). The London Stock Exchange published a practical guide to help the board of directors implementing the recommendations in the UK Combined Code in 2004 (LONDON STOCK EXCHANGE, 2004). This guide is highly recommended and worth to download under: www.londonstockexchange.com.

In all codes one point has a high priority: the problem of power and control in complex organisations. Therefore checks and balances in the outer and the inner circle of a company are very important. This situation can be illustrated with two triangles one in another as follows (BÖCKLI, 1996):

Figure 1: Corporate Governance as a system of checks and balance

(based on BÖCKLI, 1996)

Corporate Governance has two different functions (MÜLLER, 2004):

- *In the sense of organisational control*: Uppermost constitution of business management, i.e. appropriate specification of the tasks and functional structuring and formation of the topmost management bodies
- *In the sense of organisational correlation*: Relationship of the uppermost management bodies to the shareholders and to business relevant shareholder groups (Shareholder Value and Stakeholder Value)

The Codes for Corporate Governance for the most part contain no absolute obligatory provisions. Rather, deviations from the recommendations are possible, but then there must be justification for this deviation, fully in the sense of "comply or explain". If a company fulfils all recommendations for Corporate Governance it is enough to declare this in the annual report. If there is a deviation three measures have to be taken. First it must be explained why a certain recommendation is not followed. Secondly it is to point out which solution is chosen in its place (or, in the event of "large-scale rejection", why a solution is not considered necessary). Finally, the management has to declare that the chosen solution will be strictly followed as described (FINANCIAL REPORTING COUNCIL, 2010).

Good Corporate Governance is based on clear structures and strategies. Therefore, bylaws, regulations, minutes and other documents are necessary. This is linked with formalism and expenditure of time. But the outcome of good Corporate Governance is a clear value proved by the following 10 points (based on MÜLLER, 2004):

1. Appropriate relationship between owners and management

The owners can clarify their goals and values in a written owner's strategy. Based on it the Board of Director's has to establish an appropriate business strategy. The owner's strategy provides clarity and a clean separation of roles between owners and management.

2. Efficiency in management and control

Clear tasks, precise skills and responsibilities associated increase in the clarity of leadership. This leads to a more accurate implementation of controlling and reporting, which ultimately leads to an improvement in strategic leadership. The focus on the clear central task stimulates awareness and encourages the development of core competencies.

3. Reduction of the leadership effort

Clear roles and responsibilities reduce tensions in the management and avoid unnecessary duplication. The leadership effort can be reduced.

4. Improvement of the ratings for banks

New banking regulations require detailed audits of clients and transactions. Not only hard facts as balance sheet and income statement but also soft facts as the composition of the board of director's and the name of the audit company are today important for the bank rating. As a result, compliance with the recommendations of Good Corporate Governance will improve the creditworthiness.

5. Reduction of insurance premiums

Risk management is an integral part of Corporate Governance. Risks are systematically collected, assessed and mitigated as far as possible. The insurance company will receive an objective and complete overview of the risk situation. As a result, the company benefits from reduced insurance premiums.

6. Strengthening customer relationships

Customers who rely on stable relationships receive the guarantee, to have a supplier, which sets itself on continuity and long-term business development. On this basis, stable customer relationships are built and established.

7. Improvement of supplier relations

Companies with a consistent implementation of Corporate Governance, in particular with respect to the quality focus, are reliable partner suppliers.

8. Simplification of cooperation

Joint ventures between companies and cooperation in group structures get easier with transparent and well documented organisations. Corporate Governance can help to simplify such cooperation.

9. Liability prevention

In most countries the "Business Judgement Rule" is applied in court. According to this rule the judges have to consider whether the directors or officers have acted in a concrete situation as a reasonable businessman. Today judges expect the management to comply with the recommendation for good corporate governance.

10. Improvement of ethic conduct

Aviation companies with a careful implementation of Corporate Governance Guidelines are improving the ethic conduct of all employees. Corruption and bribes cannot be ruled out with clear guidelines, but at least be reduced.

10.3 Building a talented board of directors

Corporate governance has a special significance for the whole aviation industry. Each airport, aircraft producer, airline or maintenance and overhaul enterprise must have a special focus on security and safety. As a consequence risk management is the first subject of corporate governance with a special importance for the aviation industry. The second point is the focus on compliance. An enormous number of national and international regulations must be followed and monitored especially from the International Civil Aviation Organization (ICAO) or from the European Aviation Safety Agency (EASA). A third subject of corporate governance with special importance to the aviation industry is the financial planning and controlling. Aviation enterprises require high financial resources. The frequency and the amplitude between profits and losses are much higher than in any other industry. And finally as a fourth point of corporate governance the composition of the board of directors and of the executive management is more important than in many other branches.

The Board of Directors is a group of individuals who are elected by stockholders to establish corporate management policies and make decisions on major company issues, such as com-

pany strategy. The Board of Directors' role is to provide entrepreneurial leadership of the company within a framework of prudent and effective controls, set strategic aims, and set the company's values and standards and ensure that its obligations to its shareholders and others are understood and met (FINANCIAL REPORTING COUNCIL, 2008). Therefore it is clear that the Board of Directors is a key element for the success of a company.

Building a talented an efficient board of directors is demanding. Especially the balance between requests and remuneration is difficult to find. A practical exercise can make the facts clearer.

Define key elements (number of members, personal and social skills, constitution and committees) for a talented board in the following company:

- Airline with home base in Europe
- Operating 3 A-320 and 3 Dash 8-300
- Destinations only in Europe
- 150 employees
- EASA Part-145 licence for repair and overhaul
- Low price strategy with small administration
- Actual family owners with target initial public offering (IPO)

The number of members should be three for small companies, five for medium companies and seven for big and public listed companies. An odd number is favourable to prevent stalemates. The criteria for the distinction in small, medium or big companies are assets, turnover and employees. In the European countries the following figures are significant:

Enterprise category	Headcount	Turnover	or	Balance sheet total
medium-sized	< 250	≤ € 50 million		≤ € 43 million
small	< 50	≤ € 10 million		≤ € 10 million
micro	< 10	≤ € 2 million		≤ € 2 million

Table 1: Qualification criteria for enterprise categories (European Commission Recommendation 2003/361/EC)

In Switzerland the criteria are the same but according to Art. 727 of the Swiss Code of Obligations (CO) the figures are different to qualify a big enterprise: more than CHF 10 Mio. assets, more than CHF 20 Mio. turnover and more than 50 FTE (full time employees).

In medium and big companies the chairman of the board and the CEO should not act in personal union regarding the resulting advantages and disadvantages:

- Advantages of a personal union:
  - Detailed knowledge in technical and business concerns
  - Current and direct information by means of the management function

- Versatile opportunities for self motivation via profit sharing
- Safeguarding pursuant to employment law and according to social insurance law

- Disadvantages of a personal union:
  - Independence and with that limited objectivity
  - Risk of pursuing own interests
  - Insufficient information of the remaining executive boards
  - Difficult control can cause tension in the executive board

The nomination of a chairman is compulsory that of a vice-chairman is optional. But a vice-chairman is recommended, because the chairman could get ill or have an accident and in consequence would no more be able to fulfil his duty. Furthermore the chairman could have a conflict of interest. In all such cases it's useful when the vice-chairman can lead the meeting of the board of directors.

The most important point is the optimal selection of the board members. The majority should be non executive and independent. This qualification fulfils only a person who was not an employee of an aviation enterprise in the last five years, who is no important shareholder, customer or supplier and who has no close relationship to the auditor. Each member should have useful knowledge and helpful social skills under the aspect of a general view on the whole board of directors. To be sure that all the requested skills are represented, the following matrix is helpful:

social role / know how	Coach/ Team-Player	Analyst	Critic	Entre-preneur	Sponsor/ Communi-cator
Auditing/Controlling					
Aviation Knowledge					
Marketing/Customer					
Risk Management /Compliance					
Human Resources/ Internat. Relations					

Table 2: Optimal composition of the board of directors
(HILB, 2008)

It is necessary to carefully select the secretary of the board because he has access to all documents, hears everything in the meetings and knows even the details of the enterprise strategy. He must be absolutely loyal to the company and keep secrets strictly confidential. An ideal but expensive solution is the choice of a lawyer as the board secretary. In this connection it should be added that minutes of meetings are very important not only for the company but especially for the board members. In cases of responsibility and liability, minutes are the sources for accusation and defence. Short minutes without details of discussions or documents as basis are almost worthless. Minutes should always be signed by the chairman and the secretary. Further information and help for taking minutes can be found in: MÜLLER ROLAND, Protokollführung und Protokollauswertung, DIKE 2009.

Art. 716a CO assigns the ultimate direction of the company to the board of directors, which has non-transferable and inalienable duties. The board is responsible for:

a) the ultimate management of the company and giving of relevant directives
b) the establishment of the organization
c) the structuring of the accounting system and the financial controls, as well as the financial planning
d) the appointment and removal of the persons entrusted with the management and representation of the company
e) the ultimate supervision of the persons entrusted with the management of the company in particular in view of compliance with the law, the articles of incorporation, regulations and directives
f) the preparation of the business report, as well as the preparation of the general meeting of shareholders and the implementation of its resolutions
g) the notification of the judge in the case of over indebtedness. Furthermore, Art. 717 CO states that the board of directors shall perform their duties with due care and will safeguard the interests of the company

In addition, according to Art. 626 CO, an organization must establish rules concerning its board of directors. The board of directors issues organizational regulations, which are based on Art. 716b CO. They define the organization, responsibilities and authority of the executive bodies or spheres within a company, i.e. the board of directors and its members, its committees and its chairman, the chief executive officer as well as the executive management of the company and its subsidiaries and divisions. Such organizational regulations are generally concerned with the operation of the organization, setting out the form, manner or procedure in which a company should run. Although organizational regulations tend to contain some aspects of corporate governance, the section remains rather limited in scope and has a different purpose. Internal corporate governance guidelines provide the framework for governance in a company; they promote the effective functioning of the board and its committees and establish a set of expectations as to how the board should perform its functions. They promote the interests of shareholders and further the company’s commitment to best practices in corporate governance.

A special question that should also be clarified in the organizational regulations is the benefit or the unnecessary expense of committees. According to the Swiss Code of Best Practice for Corporate Governance it is recommended to form three committees: an audit committee, a nomination committee and a remuneration committee. But in boards with only three members it should be seriously evaluated if such committees are really helpful. A committee is always a way to focus on a special task. Therefore it's usually an advantage to have at least an audit committee to concentrate on financial aspects. The nomination and remuneration committee can be joined in one, because it's for example not possible to find a CEO without discussing the remuneration.

Audit committee members need to be able to evaluate and supervise any issue of internal auditing and external financial reporting. Many audit committees are also responsible for over-

seeing risk management. Therefore, it is essential that audit committee members have the financial skills and capabilities to carry out these activities adequately. Corporate governance codes recommend that board committees are composed of non-executive and preferably independent members. Non-executive directors are board members who do not at the same time serve as members of the management board. Independent directors are individuals who are not affiliated with the company, whether in a shareholding, supplier, customer, consulting, family, or current or recent employment capacity. According to the UK Combined Code of the Financial Reporting Council (2008) the independence is not given when a director had an employee contract in the last five years with the company.

The purpose of an audit committee is to ensure that all financial reporting and control systems employed by the company and its particular divisions meet the requirements of the adopted accounting standards and regulations and that both the internal and external audits and control procedures are adequate to confirm that they do so. Furthermore, such a committee should serve as an independent and objective body to monitor the integrity of the financial reporting. In addition the committee should maintain an orderly financial and administrative status and insure introduction and maintenance of systems that are applied to support the achievement of such goals in the areas of finance, accounting and legal. Even if the audit committee fulfils specific responsibilities, such as review internal interim accounts, liquidity reports and annual accounts, the board of directors remains fully responsible for the structuring of the accounting system and the financial controls, as well as the financial planning.

Aviation enterprises at a higher degree are confronted with risks. Therefore, a special risk management committee could be appropriate remedy. The purpose of such a committee should be:

- to determine and to assess business and safety risks within the company
- to overview the process of business and safety risk management
- to confirm mitigating actions including proper insurance cover are in place to reduce risks to acceptable levels
- to report quarterly to the board of directors and to make propositions for further improvement of the risk management
- to ensure that the company maintains a register of business and safety risks together with the mitigating actions to reduce the risks
- to review the proper management of the identified business and safety risks; this includes the necessary risk management process
- to guaranty protection of data privacy
- to supervise the conformity of all processes with the legal requirements
- to report quarterly to the board of directors and to recommend measures for risk awareness and management

10.4 Recommendations for Aviation Governance

Since the first code of best practice for corporate governance in1992, more than 120 different codes have been published. Most of them are directed to listed, or at least large companies. A few of them contain recommendations for public or non profit organisations, but no one of them is especially addressed to the aviation governance. This is one of the reasons that provoke the following main weaknesses of current corporate practices (HILB, 2010):

- Most national corporate governance guidelines propose a "one size fits all" approach, which is dangerous.
- There is a lack of strategic direction in much of board practices.
- Board selection, appraisal, remuneration and development often lack integration and professionalism.
- Often there is al lack of in-depth know how in risk management at board level.

To avoid these problems it is necessary to extract from the most relevant codes those recommendations which are not only adoptable but also useful for the aviation Industry. A good starting point is the well established UK Corporate Governance Code in the actual version 2010:

The Role of the Board	Every company should be headed by an effective board which is collectively responsible for the long-term success of the company
Division of Responsibilities	There should be a clear division of responsibilities at the head of the company between the running of the board and the executive responsibility for the running of the company's business
The Chairman	The chairman is responsible for leadership of the board and ensuring its effectiveness on all aspects of its role
The Non-Executive Directors	As part of their role as members of a unitary board, non-executive directors should constructively challenge and help develop proposals on strategy.
The Composition of the Board	The board and its committees should have the appropriate balance of skills, experience, independence and knowledge of the company to enable them to discharge their respective duties and responsibilities effectively
Appointments to the Board	There should be a formal, rigorous and transparent procedure for the appointment of new directors to the board
Commitment	All directors should be able to allocate sufficient time to the company to discharge their responsibilities effectively
Development	All directors should receive induction on joining the board and should regularly update and refresh their skills and knowledge
Information and Support	The board should be supplied in a timely manner with information in a form and of a quality appropriate to enable it to discharge its duties
Evaluation	The board should undertake a formal and rigorous annual evaluation of its own performance and that of its committees and individual directors.
Re-Evaluation	All directors should be submitted for re-election at regular intervals, subject to continued satisfactory performance

Financial and Business Reporting	The board should present a balanced and understandable assessment of the company's position and prospects.
Risk Management and Internal Control	The board is responsible for determining the nature and extent of the risks it is willing to take in achieving its strategic goals; the board should maintain sound risk management and internal control
Audit Committee and Auditors	The board should establish formal and transparent arrangements for corporate reporting, risk management; set internal control principles and maintain an appropriate relationship with the company's auditor
Responsibilities of the Shareholders and Disclosure	Stewardship Code (upcoming) Disclosure and Transparency Rules

Table 3: Main Principles of the UK Corporate Governance Code (UK Corporate Governance Code 2010)

The I.FPM - Center for Corporate Governance at the University of St.Gallen followed this way already for the small and medium enterprises (BINDER, DUBS, HILB, MÜLLER, 2009). Based on this publication it is possible to give specific recommendations for the aviation governance subdivided in situational level, strategic level, integrated level and controlling level.

10.4.1 Situational Level

Under this aspects only those recommendations are listed up which gave due consideration of particular circumstances within the aviation industry:

- *The advantages and disadvantages of the aviation industry*

  The possible advantages (e.g. international, English language as standard) should be exploited and the possible disadvantages (e.g. huge number of regulations, high risk business, necessity of financial resources, fast change) should be actively counteracted for the sake of effective direction and control of the aviation industry.

- *Ownership interests within the aviation industry*

  The owner (shareholder, public corporation or investors) should lay down a comprehensive ownership strategy which reflects the ownership interests and is to be periodically reviewed and revised as required. The ownership strategy should comprise in particular aspects of corporate vision, independence or alliance, management structure, growth, financing, risk policy, dividend policy and succession planning.

- *Size of the Board of Directors*

  The size of the board of directors should be dependent upon individual situations. For small enterprises (up to 50 employees) the IFPM - Center for Corporate Governance at the university of St.Gallen recommends 3 directors, for medium-sized enterprises (up to 500 employees) 5 directors and for public or large enterpriser (over 500 employees) 7 directors.

- *Structure of the Board of Directors*

  Boards of directors should comprise of an independent chairperson as well as an additional independent member. A vice-chairperson is to be elected. The secretary of the board of directors should not be a member of the board and, as far as possible, be independent. A person is deemed independent when no situational circumstances exist which could encroach upon his or her free

opinion-forming towards the shareholders, the board of directors or the executive management (e.g. main customer, main supplier, employee of the enterprise).

10.4.2 Strategic Level

The recommendations under the strategic level target the direction of the enterprises, especially the strategy and the organisation:

- *Main duties of the Board of Directors*

  According to Art. 716a of the Swiss Company Law the inalienable and non transferable duties can be summarized with "4 S": Strategy, Systems, Staff and Supervisions. To comply with the "Strategy Duty" the board of directors determines the strategic objectives, the resources for their achievement and provides for an ongoing balance between objectives and resources. To fulfil the "Systems Duty" the board of directors sets up the organisation and is responsible for the structuring of the accounting system, the financial planning and financial controls as well as for risk and crisis management. Concerning the "Staff Duty" the board of directors is responsible for the appointment and removal of the persons en-trusted with the management. And finally the "Supervision Duty" determines the board of directors responsible for the ultimate supervision of the persons entrusted with the management; the board of directors has to ensure compliance with the law, regulations, directives, and ethical guidelines.

- *Corporate Strategy*

  The board of directors and the executive management have to formulate a corporate strategy on the basis of the strategy laid down by the owners of the company. This corporate strategy should be periodically reviewed and revised as required. The development and implementation of such a strategy is to be clearly embedded within appropriate procedures and comprises the following stages: SWOT-analyses, strategy vision, approval of strategy by the board of directors, business plan, financial plan, setting up the implementation and periodic control.

- *Clarification of roles between Board of Directors and Executive Management*

  The board of directors provides the strategic prerequisites, approves the corporate strategy and monitors its implementation. The executive management develops and implements the corporate strategy. The board of directors should delegate operative tasks to the executive management. In critical situations, the board of directors needs to deal with the affairs of the enterprise, particularly intensively, to devote additional time to the enterprise as well as to intervene operatively as the situation requires.

- *Requirements of the members of Board of Directors and Executive Management*

  The successful direction and management of an aviation enterprise requires the members of the board of directors and executive management to be personalities of integrity and commitment, possessing professional as well as leadership and social competences. Due to the internationality of the regulations in the aviation industry all board members should have adequate knowledge of the English language. At least one member must have practical experience or qualified theoretical knowledge in aviation.

- *Organisational regulation*

  An organisational regulation is mandatorily necessary for a delegation of management activities to the executive management. It should regulate the functions and collaboration of the board of directors and the executive management, in particular: apportionment of duties, competences and

responsibilities, signatory power, frequency of meetings with main agenda points, internal and external communication. The organisational regulation is to be issued by the board of directors and should be regularly reviewed.

- *Decision-making within the board of directors*

  With regard to important decisions, the board of directors should give due consideration to the relevant interests of the various stakeholders. For this purpose, each member of the board should conduct a SWOT analysis from a different stakeholders' point of view: "Four Hats Principle" (including customers, owners, personnel, society).

10.4.3 Integrated Level

An efficient board of directors and executive management is the target of the recommendations under this level:

- *Constitution of the Board of Directors*

  The board of directors should function as a team on the basis of a culture of trust. In addition, the members of the board should be equipped with various role skills such as the roles of the critical thinker, the controller or the innovative thinker. In an aviation enterprise the board of directors should comprise of at least one female member; this is to assure more success relevant diversity in the decision-taking process. With special committees (audit, nomination and remuneration, risk management) the efficiency of the board can be increased.

- *Chairperson of the board of directors*

  The chairmen of the board of directors should lead by example and make every effort to achieve a constructive open corporate culture of trust between the shareholders, the board of directors, the executive management and the workforce. The chairperson is responsible for upholding the interests of the aviation enterprise, the introduction of new ideas, the elaboration of current challenges as well as the effective preparation and chairing of the meetings of the board. He must ensure the provision of punctual and relevant information to the entire board of directors.

- *Avoidance of conflicts of interest*

  All members of the BoD and the EM are to avoid conflicts of interest. In any case of conflict of interest arising, such has to be reported to the chairperson of the BoD. The chairperson of the BoD should then be responsible for proposing an adequate resolution on the matter (generally in the absence of the member affected) to the BoD.

- *Objectives and assessment of Board of Directors and Executive Management*

  The board of directors has to periodically assess its capabilities as a corporate organ for the aviation enterprise. In coordination with the other members of the board, the chairman must annually assess the capabilities of himself and of the other members. The same assessment should be done for all members of the executive board. All assessments are to be conducted on the basis of prior agreed qualitative criteria and quantitative objectives.

- *Remuneration of Board of Directors and Executive Management*

  The board of director has to ensure that the aviation enterprise remunerates the members of the board and the members of the executive management based on internal fairness, external equity and competitive company performance.

- *Instruction and training of Board of Directors and Executive Management*

  Especially in the fast changing aviation industry the instruction and training of all employees are very important. Therefore the board of directors has to ensure a suitable induction of newly elected members and an adequate advanced training of members of the board of directors and the executive management.

- *Succession planning*

  Based on international regulations the national civil aviation authorities (CAA) demand assessments for higher qualified postholders (e.g. postholder flight operations, postholder ground operations, postholder crew training or postholder maintenance). The board of directors has to undertake early and careful planning of the succession of such postholders as well as of members of the board of directors or of the executive management.

10.4.4 Controlling Level

Finally under the aspect of controlling it is possible to list up concrete recommendations for effective supervision within the aviation enterprise:

- *Information and reporting*

  Decisions in an aviation industry must be based on actual and precise information. The board of directors must therefore establish a management information system (MIS) which is adjusted to the requirements of the aviation enterprise. The monthly reporting should include all relevant details for direction and control activities such as CEO report, CFO report, cockpit charts, projects status, rolling liquidity plan for 12 months and quarterly a forecast.

- *Communication and Whistle Blowing System*

  The chairperson of the board of directors and the president of the executive management are obliged to ensure a mutual corporate culture of trust. This represents the basis for sustainable business success. It can be helpful to implement a whistle blowing system by which an employee can report ethical or criminal misconduct to a fellow employee or superior within the aviation enterprise without fearing negative consequences.

- *Risk Management and Safety Management System*

  The board of directors has to implement and to control an efficient risk management system for permanent and systematic recording of all kinds of risks with regard to the existence and the development of the aviation enterprise. It must involve analyzing and prioritizing recognized risks as well as defining and implementing adequate strategic or surgical measures to minimize non-tolerable risks. A special safety management system (SMS) should be the tool to manage the safety in aviation.

- *Compliance with regulations*

  The board of directors has to safeguard the compliance of the aviation business with appropriate legal and ethical standards. A permanent monitoring of the international and national laws and regulations is necessary.

- *Keeping minutes*

  The board of directors has to ensure suitable and sufficient keeping minutes of its meetings which record its deliberations and resolutions passed. With regard to the executive management, records within the minutes should only be that of resolutions passed. The execution of all resolutions must be monitored with proper record of pending items.

- *Financial auditors*

  The board of directors has to propose to the general meeting of shareholders the election of competent and independent financial auditors. The board is to obtain an assessment of their effectiveness. For this purpose, the board or a delegated member thereof is to meet together with the financial auditors at least once each year.

- *Annual report to the owner*

  The board of directors has the duty to report to the shareholders on the activities of the board of directors and the executive management. The annual report for the past financial year is to be presented to the shareholders at the annual general meeting. A written form of the annual report should also include details of the effective direction and control of the aviation enterprise.

Review Questions

- How can the term "Corporate Governance" be defined?
- What are the two main functions of Corporate Governance?
- In which areas a concrete added value will be created through Corporate Governance?
- What are the qualification criteria for aviation enterprise categories?
- How many directors should be nominated for a small, medium or big enterprise?
- What are the advantages and disadvantages of a personal union BoD chairman and CEO?
- How should the Board of Director's in an aviation company be composed?
- Which committees are useful for an aviation company?
- How can Corporate Governance in aviation be improved on the situational level?
- How can Corporate Governance in aviation be improved on the strategic level?
- How can Corporate Governance in aviation be improved on the integrated level?
- How can Corporate Governance in aviation be improved on the controlling level?

References

Binder A., Dubs R., Hilb M., Müller R. (2009) Best Practice in SME: Recommendations for the Direction and Control of Small and Medium-sized Enterprises. IFPM Center for Corporate Governance, University of St.Gallen, St.Gallen.

Böckli P. (1996) Corporate Governance, The Cadbury Report and the Swiss Board Concept of 1991, in: SZW, 68/1996, pp. 149-163.

Cadbury A. (1999) Corporate Governance Overview, World Bank Report 1999.

Economiesuisse (2007) Swiss Code of Best Practice for Corporate Governance. Up dated English version, Zürich.

Financial Reporting Council (2008) The Combined Code on Corporate Governance, London.

Financial Reporting Council (2010) The UK Corporate Governance Code, London.

Hilb M. (2008) New Corporate Governance, 3rd ed., Berlin.

Hilb M. (2010), New Corporate Governance in the post-crisis world. Global Corporate Governance Forum Issue 16, Washington.

Hofstetter K. (2002) Corporate Governance in Switzerland. Zürich: economiesuisse.

London Stock Exchange (2004) Corporate Governance: a practical guide, London.

Müller R. (2004) Corporate Governance und KMU. In: Vater, H., Bender, Ch., Hildenbrand, K. (Eds.), Corporate Governance. Haupt, Berne, 37-60.

Müller R. (2009), Protokollführung und Protokollauswertung. DIKE, Zürich.

OECD (2004) Principles of Corporate Governance, Paris.

Chapter 11

Risk Management in Aviation

Roland Müller

Abstract

- 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 the Risk Management depends extremely on the enterprise culture; an efficient Risk Management starts at the level of the Board.
- In the operational area the Corporate Risk Management may be complemented and optimized by an integrated Safety Management System.
- For aviation companies it is recommended to consider a D&O-Insurance.

11.1 Introduction

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, 2007). What's 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 future and risk. 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 to 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 farsighted enterprise manage-

ment should aim to recognise possible risks and to minimise as far as possible the most dangerous amongst these through adequate strategic or surgical measures. Therefore, consciously or unconsciously every enterprise management pursues Risk Management as a rule (Kalia, Müller, 2007).

11.2 Importance of Risk and Safety Management in Aviation

Aviation systems are characterized by a huge number of complex interactions and interdependences between stakeholders and disastrous consequences in the case of an accident, so that safety and risk management 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 amount of injured passengers in relation to flown kilometres. Flying has become the most secure 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). Despite this convincing numbers all stakeholders in Aviation still concentrate on further improvement of aviation safety.

Technical progress and the globalization 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 and 14 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 for aviation industries (e.g. AeroEx in Buchs, www.aeroex.eu).

The subject Corporate Governance is important for all companies (small, medium or big, family hold 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, London 2010) demands in chapter A.1: the board of director's 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 over-all risk management in the context of Corporate Governance has to be distinguished from the focused operational risk management in the aviation. It is therefore helpful to speak of "Corporate Risk Management" if the over-all approach in the sense of Corporate Governance is intended. A part of the 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 organization's structure, work and authority flows, people and management information systems, designed to help the organization 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 iden-

tification (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 base on the Corporate Risk Management without touching the aspects of internal controlling as follows:

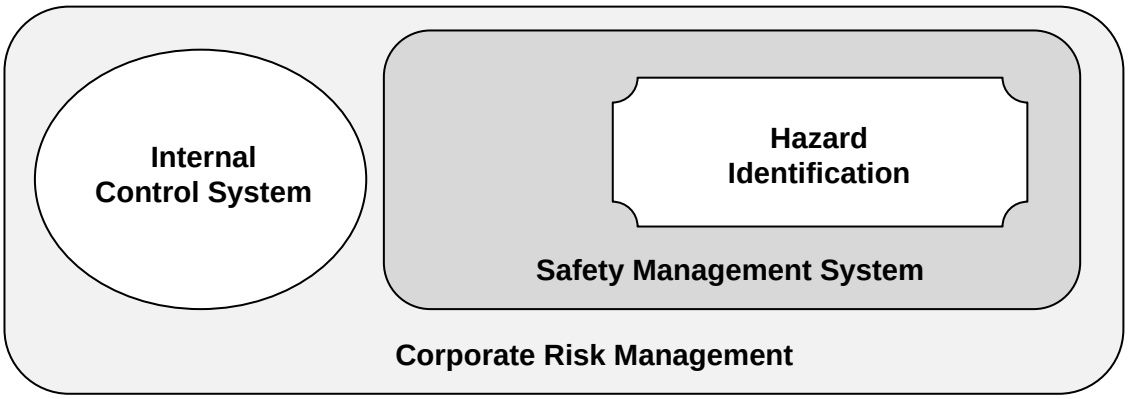


Figure 11.1: Connex of Risk Management and Safety Management System

Researches by the I. FPM Center for Corporate Governance at the Institute for Leadership and Human Resources Management at the University of St.Gallen 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, Lipp, Plüss, 2007). The 10 most common and important mistakes and deficiencies at board level can be listed as follows:

1. Wrong structure and insufficient qualification of the Board of Directors (BoD), in particular 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, in particular 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, in particular by insufficient or delayed reporting to the Board of Directors.
8. Delayed or incorrect decision making, in particular according to incomplete decision documents.
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.

Table 11.1: Mistakes and Deficiencies at Board Level
(KALIA/MÜLLER, 2007)

11.3 Definitions in Risk Management

Hazard

A hazard is defined as a condition or an object with the potential to cause injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function (ICAO, 2009). The description of the potential outcome of the hazard is the consequence.

Hazard Identification

Hazard identification (HAZID) is the process of identifying hazards, which forms the essential first step of a risk assessment (ICAO, 2009). 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) or to perform a qualitative evaluation of the significance of the hazards and the measures for reducing the risks from them (hazard assessment).

Risk

Risks are unforeseen deviations from 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, LIPP, PLÜSS, 2007). 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, 2007). 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, 2009). 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 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 of every level of an organization. Safety Culture refers to the extent to which every individual and every group of the organization is aware of the risks and unknown hazards induced by its activities; is continuously behaving so as to preserve and enhance safety; is willing and able to adapt itself when facing safety issues; is willing to communicate safety issues; and consistently evaluates safety related behaviour (ECAST, 2010).

Safety Management System

Safety Management System (SMS) can be characterized 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, HALFORD, GOGLIA, 2008). One important part of SMS consists of an (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 organizational safety culture. It includes also appropriate Safety Training. The SMS is not a substitute for compliance with regulation and having 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 the 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 and "security control" means the application of means by which the introduction of prohibited articles may be prevented.

11.4 Implementing a Risk Management System

11.4.1 Integration in Corporate Governance

Until about 1970 risk management had been focused on the financial risk, especially the risk of debtor losses. In the next ten 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 has completed the risk radar:

Figure11.2: Risk Radar for Corporate Risk Management
(KÄGI, PAULI, 2003)

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).

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, 2007).

11.4.2 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 the following steps (MÜLLER, LIPP, PLÜSS, 2007):

1. Determine the risk organization 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 corresponding budget
8. Introduction of a risk report system
9. Analysis of accidents and incidents under the view of new risks
10. Periodic review of the organization, the process and the Master Risk List

The risk organization can be determined in three different ways. The board of directors can carry out the duty alone. For small companies it's 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 approach furnishes the best results. The Swiss Air-Rescue Rega collected from its employees in the year 2007 a total of 520 risks. After a first evaluation 350 relevant risks remained and have been further judged in a risk assessment according to the following matrix (MÜLLER, LIPP, PLÜSS, 2007:

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				

Figure 11.2: Risk potential evaluated by a risk assessment (MÜLLER, LIPP, PLÜSS, 2007)

The risk assessment classifies the identified risks based on probability and impact. It suffices to judge the risks appropriate to the organization. The focus of the risk assessment lies on the risk perception and not about exactly estimating 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 the risk assessment below is the first part of the master risk list of a regional airport shown. The top risk is an income subject and the second rank is the security, both huge problems of airports (SCHULZ, BAUMANN, WIEDENMANN, 2010).

Risk Title	Risk Description	Probability	Impact	Potential	Rank
reduction of passenger numbers	airlines cancel destinations or give up due to financial problems	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 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	3	3	9	**10**

	measures against acoustic noise				
market risks	higher costs/lower revenues	3	3	9	**11**
collision vehicle with aircraft	collision of vehicles with aircrafts on tarmac or taxiway	3	3	9	**12**
damages to persons	damages to persons on tarmac (passenger, employee, suppliers)	3	3	9	**13**
confusion of 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**
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 11.3: Master Risk List of a regional airport

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. 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 (KPI) 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, 2007). 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 entire potential.

11.4.3 Safety Management System based on Corporate Risk Management

Safety concept in aviation may have different purposes, for example (ICAO, 2009):

- zero accidents or serious incidents
- freedom from hazards
- attitudes of employees of aviation organizations 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 under control all variables that can precipitate bad or damaging outcomes. However, while the elimination of accidents and/or serious incidents and the achievement of absolute control is certainly desirable, they are unachievable goals in open and dynamic operational contexts. Hazards are integral components of aviation operational contexts. 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, 2009).

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, 2009) .Safety Management exists since the early days of aviation. What has changed over the years is the way we handle them. Whereas 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 installment of a containment net under the window (ICAO, 2009).
Relevant for the implementation of SMS are the standards and recommended practices (SARPS). They can be found in the ICAO annexes 6, 11, 14 and in the ICAO Safety Man-

agement 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 the EU-OPS 1.037 exists, which defines an accident prevention and flight safety program consisting of a risk awareness system, reporting system, evaluation of accident information and a flight data monitoring program for airplanes heavier than 27'000 kg maximum take off weight. Furthermore, every organization 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 containing much more detailed requirements for small operations.

11.5 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 claims that are sometimes supported by litigation finance companies lead to an increasing demand for adequate insurance cover for members of the strategic and operational management levels in the event that 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 before the 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 the 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. In case existing risks are not disclosed, the insurance will not cover related claims. The terms of the policy as well as the determination of insurance coverage differ between the various insurance companies. It is recommended to consult a specialist insurance broker in D&O-Insurance and to compare different offers.

All D&O-Insurances are based on the "Claims-Made-principle". Covered are only those damages that are claimed during the policy period. 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

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, also this special cover needs to be arranged explicitly.

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

- members of the 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, 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 subsidiary 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% to 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 additionally individual coverage exclusions e.g. financial transactions within the group are being set regularly 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 major shareholder (from about 15% to 20% voting right onwards)
- 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?
- 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 may 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?

References

Boutellier R., Kalia V. (2006) Risikomanagement auf Unternehmensebene: Notwendigkeit und Gestaltung. In: Gassmann O., Kobe C. (Eds.): Management von Innovation und Risiko, 2nd. ed., Berlin.

ECAST (2010) Safety Management and Safety Culture. Working Group website of the European Commercial Aviation Safety Team, http://www.easa.europa.eu/essi/ECAST_SMS.htm.

Financial Reporting Council (2010) The UK Corporate Governance Code, London.
Gleissner W., Romeike F. (2005) Risikomanagement: Umsetzung, Werkzeuge, Risikobewertung, Freiburg.

ICAO (2009) Safety Management Manual (SMM). International Civil Aviation Organization, 2nd ed., Montreal.

Kalia V., Müller R. (2007) Risk Management at Board Level: A Practical Guide for Board Members, Berne.

Maggi B. (2009) Flight LX14 - A Journey from Zürich to New York. In: NZZ Folio 08/2009, Zürich.

Müller R., Lipp L., Plüss A. (2007) Der Verwaltungsrat: Ein Handbuch für die Praxis, 3rd ed., Zürich.

Schulz A., Baumann S., Wiedenmann S. (2010) Flughafen Management, München.

Stolzer A., Halford C. D., Goglia J. J. (2008) Safety Management Systems in Aviation, Cornwall.

Chapter 12

Authorities and Regulations in Aviation

Roland Müller

Abstract

- Aviation is dominated by supranational and international regulation and authorities; national authorities have only few competencies for aviation regulations.
- The Chicago Convention and the resulting freedoms of the air are the main basis for the whole aviation industry.
- The International Civil Aviation Authority (ICAO) as a part of the UNO is the most important regulator in the worldwide aviation.
- The European Aviation Safety Agency (EASA) is the most important regulator in the European Aviation.
- The airspace is clear structured in classes and types; strict rules for air traffic help to avoid collisions and near misses.
- Passengers in Europe or in European Airlines profit from special passenger rights.

12.1 Introduction

Aviation is dominated by international organizations and regulations. The most important organization is the International Civil Aviation Organisation (ICAO). Because the ICAO is based on a multilateral agreement (the Chicago Convention) signed by more than 190 countries and having the power to legislate in the field of aviation this organization is called supranational. The national civil authorities (CAA) have to comply with the ICAO regulations. In Europe the Joint Aviation Authorities (JAA) have first established guidelines in the aviation. Now the European Aviation Safety Agency (EASA) has replaced the JAA with the power to legislate in the field of aviation.

Against the general view the freedom in the air is not unlimited. Especially the commercial aviation has to observe a huge number of regulations. The airspace has a complicated structure of classes and types. Violations of the rules of the circulation in the air are punished severely. On the other hand the strict regulations in the aviation had brought special rights for passenger transported by airlines.

12.2 International and supranational organizations

12.2.1 UNO and ICAO

The International Civil Aviation Organisation (ICAO) is a special organisation of the United Nations Organisation (UNO) and has been founded in connection with the convention of Chicago (CHI) in 1944. It consists of about 190 member states; the actual list is published under: www.icao.int/cgi/statesDB4.pl?en (MÜLLER, SCHMID, 2009; the following chapter is based on this publication). The ICAO has a typical trinomial organisational structure and according to its competencies and functions it has legal capacity in regard to public international law. The plenary assembly and the council are the most important institutions; the secretariat and different committees are subordinate to the council (SCHWENK/GIEMULLA, 2005).

The decision-making body of the ICAO is the assembly, which is also termed legislature (ERLER, 1967). It is composed of delegates of each signatory state and meets at least in a three-year cycle. Usually, decisions are made based on the majority of votes, whereby each delegation disposes of one vote. In practice the assembly confines itself to define the guidelines of operations. It is responsible for decisions on budget and for the composition of the members of its committees (Art. 48 and 49 CHI).

The council constitutes the executive body of the ICAO and comprises of 36 members. It is elected by the assembly. The latter has conferred a large part of its competencies on the council. Based on the original and delegated authorization, the council appoints committees and commissions, decides upon their work programme and enacts or alters regulations regarding international civil aviation. In addition to legislative and administrative functions the council is responsible for arbitrational settlements. It can be described as the "standing main executive body" (ERLER, 1967).

Besides the aviation committee and the air transportation commission mentioned in the CHI, the ICAO commands a committee on legal matters, assistance and financial affairs as well as a secretariat which is headed by a Secretary General who is nominated by the council (SCHWENK/GIEMULLA, 2005). Amongst these committees, the ICAO aviation committee has an exceptional position. It consists of a group of technical experts, who are appointed by the council for a period of three years due to their personal competence and knowledge. The focus of the aviation committee is on technical not on political aspects. It addresses for example

issues regarding aircraft construction, aviation workforce and ground controls. It is responsible for the development of international civil aviation regulations (Art. 56 and 57 CHI).

12.2.2 ECAC and JAA

The European Civil Aviation Conference (ECAC) is an independent regional organisation of the ICAO. By now it comprises of 44 member states. The ECAC does not represent a subject of international law. Its foundation has been initiated by the Council of Europe and the ICAO (SCHWENK, GIEMULLA, 2005).

The plenary conference constitutes the main body of the ECAC. It incorporates the ministerial delegation of all member states of the ECAC and meets every three years. It determines the work programme, the financial framework and additional important control decisions (WEBER, 2003). Besides the plenary conference, regular and extraordinary meetings between the heads of national aviation authorities take place (RIEDEL, 2006). In these meetings the heads of the national authorities pass internationally effective resolutions just like the plenary conference. Today, the meetings held by the heads of the national aviation authorities have emancipated themselves from the plenary conference in that manner that they may be termed the ECAC`s "permanent executive body" (WEBER, 2003). Like the ECAC the ICAO has a permanent structure including a secretariat as well as a variety of committees. For specific air traffic tasks additional institutions may be established besides the working committees under the organisational und legal umbrella of the conference. A corresponding work agreement between the participating member states is the basis for the establishment of such institutions (RIEDEL, 2006).

The Joint Aviation Authorities (JAA), which counts 42 member states, is an institution of the ECAC (JÄGER, 1995). The Agreement of Cyprus from September 11, 1990 is one of the central agreements on which the JAA is based on. Its status under international law is unsolved (Riedel, 2006). In any case it has no legal capacity of its own (FROEHLICH, 2008). The Board and the Committee are the most important bodies; subordinate to these bodies are the specialist department and the secretariat.

The Board decides upon political guidelines of the JAA, long-term goals and the general work programme. The committee is responsible for the control and implementation of these regulations within individual measures. The committee is composed of one representative of each of the aviation authorities which joined the JAA (Art. 4 Agreement of Cyprus). Below this level, which is also termed "Governing Body", the JAA has a technical base which is called "Executive" (RIEDEL, 2006). The latter is made up mainly of a secretariat, a liaison office including the department's airworthiness, air traffic and licenses as well as a training organization. The heads of departments are subordinate to the Chief Executive. The majority of staff of the subdivisions is recruited from the national aviation administrations (JÄGER, 1995).

12.2.3 EC and EASA

Within article I-1 of the European Constitution of the year 2004, which has not yet entered into force, the European Community (EC) is described as a partly integrated and partly intergovernmental union of states (BREITENMOSER, HUSHEER, 2002). The EC is a complex and multilayered system of fusion of powers, which is based on a "thicket" of primary community law, which has been growing for more than 50 years (OPPERMANN, 2005).

The European Parliament (EP), the Council, the Commission, the European Court of Justice (ECJ) and the European Court of Auditors (ECA) are the main bodies of the European Coal and Steal Community (ECSC), the European Economic Community (EEC; today the European Community) and the European Atomic Energy Community (EAEC), which have been united already. Today, the EC counts 27 member states(BREITENMOSER, HUSHEER, 2002).

The European Aviation Safety Agency (EASA) represents a special organisation of the European Community (EC) with a legal personality of its own (Art. 19 (EC) No. 1592/2002 EASA). Its legal capacity in regard to public international law is partially and particulate (RIEDEL, 2006). Currently, the EASA has 31 member states. Regulation (EC) No. 1592/2002 of the European Parliament and the Council represented its legal basis. In 2008, the Regulation was substituted by Regulation (EC) No. 216/2008.

According to the regulation (EC) No. 216/2008) the EASA has a board of directors and a head of agency called Executive Director. The board of directors ensures the contact between the agency, the member state and the commission. It is responsible for the agency's major control decisions, it decides upon the work programme and the budget. It meets on a regular basis or as required, appoints the Executive Director at the proposal of the commission, exerts considerable influence on the selection of personnel for the rest of the agency`s bodies as well as on the organisation of the subordinated administrative machinery. The board of directors includes representatives of each contracting state and a commission representative. In elections, each member has one vote. The board of directors is obligated to establish an Advisory Body of Interested Parties, which consists of representatives of the aviation industry, the European-wide operating airlines and the transportation associations as well as the consumers' organisations. Due to the extensive competencies of the board of directors, the powers of the Executive Director – the second main body of the EASA – are very limited. The foundation of the EASA divides into a Rule-Making Directorate, a Certification Directorate, a Quality and Standardisation Directorate and an Administrative Directorate. The internal structure of the EASA is published at: http://www.easa.eu.int/home/org_en.html.

12.3 International regulations in aviation

12.3.1 The Chicago Convention and the Freedoms of the air

In the field of international air traffic law, the Chicago Convention (CHI) from December 7, 1944 represents the central agreement of international civil aviation. Due to its universal character it has been called "magna charta for the post-war development of international civil aviation" (Weber, 2003).

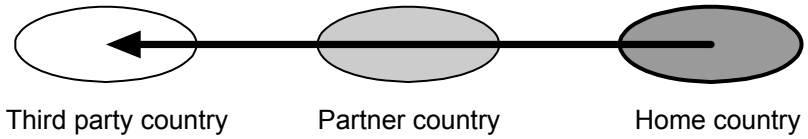
Art. 1 CHI states: "The signatory states acknowledge that every state has complete and exclusive sovereignty over airspace above its territory". However, the claim of exclusive sovereignty over airspace above the territory of contracting states contradicts the character of aviation, which is international in its nature. Subsequently, for international aviation to become possible, the states have to agree upon multilateral conventions and bilateral aviation treaties which regulate cross-border air traffic. Consequentially, the preamble of the CHI states that: "The undersigned governments have agreed upon certain principles and agreements so that international civil aviation may be developed in a secure and structured manner and may be established on the basis of equal opportunities and can be operated in a sound and economical way."

As soon as the end of World War II was foreseeable, preparations for the Chicago Convention started. In 1944, the USA invited to a diplomatic congress to discuss the future of the aviation industry. Prior to the negotiations a multilateral system of traffic rights was strived for. However, during the conference two very different positions emerged (WENGLORZ, 1992). After World War II the USA had a military aircraft fleet which was extremely strong (about 300'000 aircrafts) including various transport aircrafts. These transport aircrafts could easily be transformed into a fleet of civil aircrafts. Against this backdrop the US delegation argued for an Open Sky at the Conference. The British in contrast called for an orderly market development (LARSEN, SWEENEY, GILLICK, 2006).

The principle of an orderly market development meant a contractual regulation of all aviation services. It was aimed to negotiate all competition parameters within bilateral aviation treaties: number of seats, model of aircrafts, frequencies, flight paths, landing rights, etc. In contrast to this was the global opening of the aviation market, so called "open skies" (LARSEN, SWEENEY, GILLICK, 2006). These diverging positions caused prolonged and difficult negotiations which resulted at last in the "eight freedoms of the air" (WENGLORZ, 1992). The liberalisation of the air transport system brought the possibility to exchange flight codes. Therefore today we have the following nine freedoms of the air (MÜLLER, 2007, and BRINKHOFF, WINDHORN, 2008):

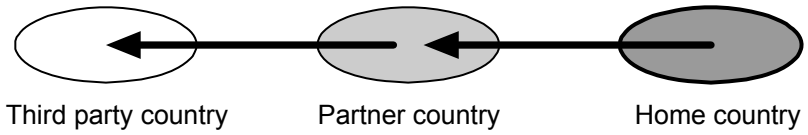
1. Freedom: the right to fly across foreign territories without landing

The right to fly across a contracting state's territory (partner country) without landing. It is also known as the technical freedom.



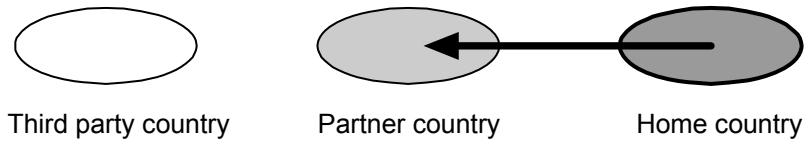
2. Freedom: The right to make technical stopovers

The right to make technical stopovers on a contracting state`s territory e.g. to refuel, to switch crew personnel or to carry out technical repairs. The most famous example of the second freedom is Shannon Airport, which was used as a stopping point for most North Atlantic flights until the 1960s.



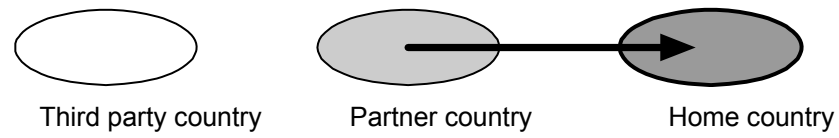
3. Freedom: Right to transport from the home state into a contracting State

The right to take on board passengers, freight and mail in the home state and to unload on a contracting state's territory. The third freedom was the first commercial freedom.



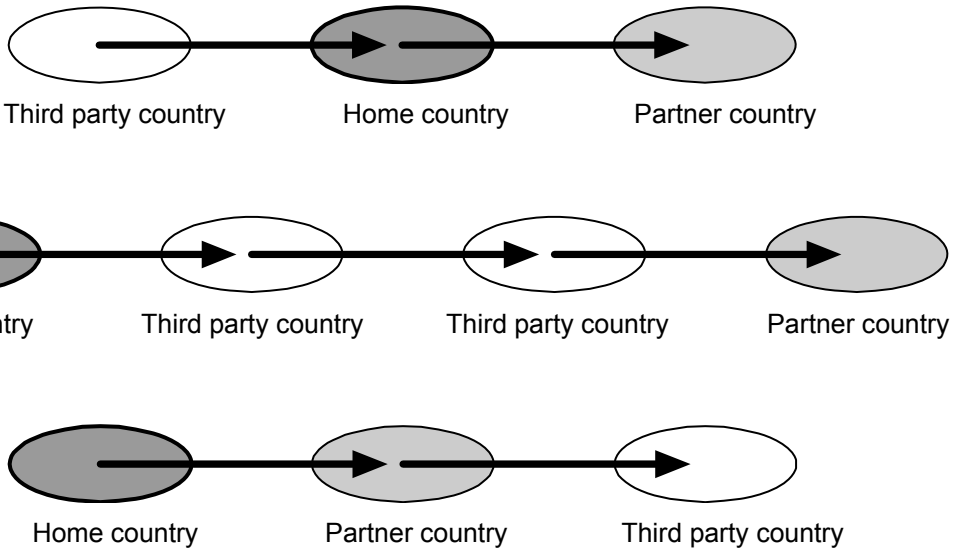
4. Freedom: Right to transport from a contracting state into the home

The right to take on board passengers, freight and mail in another contracting state and to transport to the home state of the carrier. The third and fourth freedom rights are almost always granted simultaneously in bilateral agreements between countries.



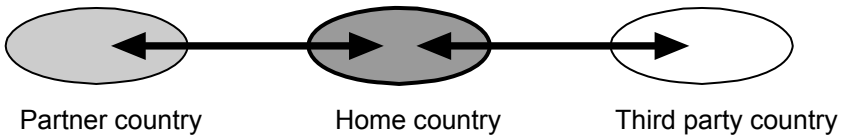
5. Freedom: Right to transport between a contracting and a third-party state

The right to transport passengers, freight and mail between the contracting states and third-party states on a particular route. The 5th freedom can be distinguished whether the third-party state is at the beginning, the intermediate or the end of the flight.



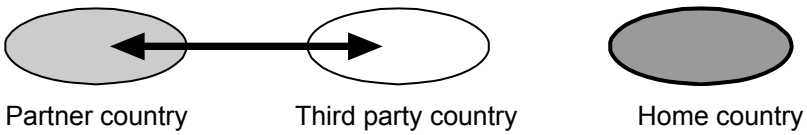
6. Freedom: Right to transport from a contracting state into the home state and further to third-party states or from third-party states into the home state and further into the contracting state

The right to take on board passengers, freight and mail in another contracting state and to transfer to a third-party state via the home state; the 6th Freedom constitutes a combination of Freedom 3 and 4.



7. Freedom: Right to transport between contracting states and a third-party state without connection to the home state

The right to permanently transport passengers, freight and mail between two contracting states or between a contracting state and a third-party state. Thus, the 7th freedom is a special case of the 5th freedom.

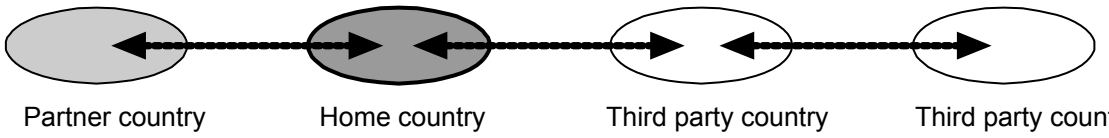


8. Freedom: Right to transport within the contracting state

The right to permanently transport passengers, freight and mail within another contracting state between the airports available, whereby the flight begins and ends in the other contracting state. The 8th Freedom is also referred to as "right of cabotage".

9. Freedom: Right to transport under the flight code of a partner airline

The right to carry passengers or cargo within a foreign country without continuing service to or from one's own country. Sometimes also known as "stand alone cabotage." It differs from the aviation definition of "true cabotage," in that it does not directly relate to one's own country. The EC agreements mentioned above also fall under this category (WIKIPEDIA, 2010).



Concrete details of the eight freedoms of the air, the flight paths, frequencies and especially the prices could not be determined, due to the differing economical powers of the states participating in the Chicago Convention.

During the Conference merely aviation regulations dealing with registration, safety standards, etc. could be defined. Thus, in order to standardize the international air traffic, particularly with regard to flight paths and pricing, another organization was founded, the International Air Traffic Association (IATA). This association consists of airline representatives, whereby it is irrelevant whether the airlines operate under stated control or privately and whether they operate within the scheduled or non scheduled air services. The main task of the IATA is the international pricing of those flights which are agreed upon during IATA Transport Conferences and are referred to in various bilateral aviation agreements (HAANAPPEL, 2008). The ICAO, the CHI and the IATA created the basis on which the states were able to negotiate about bilateral aviation agreements, the nine freedoms, different flight paths, their frequencies and prices. Over the years an international network of bilateral aviation agreements had been established (WENGLORZ, 1992).

12.3.2 The European regulation of Air Law

When the European Economic Community (EEC; today the European Community) was founded in 1957, the European air traffic was of minor importance and compared to other modes of transport had a special position; the EEC competition rules did not apply for airline companies and there was no real competition between airlines. The first liberalization proposal was made by the Council in the 1970s. After the European Court of Justice (ECJ) de-

cided by judgment of April 30 1986, that the competition rules stated in the EEC Treaty had to be applied also in the context of air traffic, the proposal was adopted by the Council.

During the 1990s within the framework of the liberalization of scheduled air services the EC has removed a complex system of international law, which had been established by states in order to secure their air sovereignty. Compared to the USA the deregulation process within the EC was significantly slower because the European airlines and other stakeholders tried influenced the opening-up process in their favour (GRUNDMANN, 1999). Often liberalization was interpreted as opening-up foreign markets and at the same time protecting own markets as long as possible (HALDIMANN, 1996).

Since 1993, there is the freedom to provide services within the European air transport market. This implicated that generally all EC airline companies are allowed to operate on all airports of the community (cabotage). According to common rules time-slots were assigned and access to ground services at airports was liberalized (OPPERMANN, 2005). Along with the liberalisation the market pattern and the price structure also changed (hub-and-spoke system / discount tariffs and dumping prices). It also led to the merger of airlines and their alliances (DETTLING-OTT, 1999).

In conjunction with the liberalisation of the domestic airline market various harmonisation measures were implemented. In the light of an increase of flight delays and cancellations, the passenger rights were strengthened. In terms of environmental protection the EC aimed at reducing aircraft noise. In addition, air traffic control services, air traffic management and the use of the European airspace were "europeanised". In the field of aircraft construction the European Aviation Safety Agency took up its operational function (OPPERMANN, 2005).

In Europe, the air traffic law developed on an intergovernmental level within the ECAC. At the end of the 1960s, the ECAC prepared the "International Agreement on the Procedure for the Establishment of Tariffs for Scheduled Air Services". At the beginning of the 1970s, the ECAC was preoccupied with establishing the accreditation regulations for the first Airbus and for this purpose ran a task force named Joint Airworthiness Authorities. In the mid 1980s, the liberalisation of air traffic within Europe became a new focus of the ECAC. Today, the ECAC contributes significantly to harmonising legislation within Europe, unless decisions are made within the EC Institution. The ECAC has also a bridge-building function between the Central and Eastern European States and the states of the EC, and generates ideas in areas such as environmental protection, security, defence against external threats, air traffic control, etc. (for further information see the webpage http://www.ecac-ceac.org).

From the Joint Airworthiness Authorities today's Joint Aviation Authorities (JAA) developed. In regard to concrete regulatory tasks the JAA played a key role. Its primary task was to harmonise the accreditation and operation of aircrafts, and to license aviation personnel. However, due to its continuous growth and its many task forces, exceeding by far 70 in total, the JAA has meanwhile come to its limits. Its mode of operation is being criticised as ambiguous, ineffective and "club-like" (RIEDEL, 2006).

12.3.3 Types of regulations

The provisions of the ICAO can be divided into primary and secondary legal regulations. The regulations of the Chicago Convention itself are part of the primary international air traffic law. This legislation enters into force directly through ratification of the respective treaty. As with many other multilateral agreements the main operational regulations are secondary legislation (TIETJE, 2001). On this level which is subordinate to the primary legislation, the ICAO provides the members states with the possibility to govern a certain issue independently according to the specific national circumstances ("opting out").

The secondary ICAO legislation is essentially made up of:

- Standards
- Recommended Practice
- Procedures for Air Navigation Services - PANS
- Regional Supplementary Procedures - SUPPS

According to Art. 54 lit. 1 CHI, the standards and recommended practices are to be handled separately from the procedures. The CHI itself does not define what is meant by standards, recommended practice or procedures. In addition to the terms "standards and recommended practices" (SARPS), the CHI uses terms such as rules (Art. 12 and 28 CHI), regulations (Art. 12 CHI), coordinated measures (Art. 25 CHI) for SARPS. At its first convocation the legislature of the ICAO confirmed the binding character of the standards and defined them as follows:

> *"Standard means any specification for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which is recognized as necessary for the safety or regularity of international air navigation and to which Contacting Stats will conform in accordance with the Convention; in the event of impossibility of compliance, notification to the Council is compulsory under Art. 38 of the Convention."*

Standards can generally be identified through the following introduction: "The contracting states shall...". For a member state the standards and procedures enter into effect if it does not avail itself of the possibility of "opting out" provided for in Art. 38 CHI. Recommended practices usually begin with the following phrase: "The contracting states may...". During the first convocation a recommended practice was defined in the following terms:

> *"Recommended Practice means any specification for physical characteristics, material, performance, personnel or procedure, the uniform application of which is recognized as desirable in the interest of safety, regularity or efficiency of international air navigation, and to which Contracting States will endeavour to conform in accordance with the Convention."*

However, within the scope of international cooperation Documents (Doc.) and Working Papers (WP) play an important role although they have – like the recommended practices – no legally binding character.

The SARPS are maximum and minimum requirements which member states should not exceed or undershoot and which aim at harmonising the national regulations, standards, procedures and organisations of signatory states in regard to aircraft, personnel, airways and support services as much as possible (Art. 37 I CHI).

Not only the articles of Chicago convention itself but also the following 18 annexes to this convention are very important for the aviation industry:

1. Aviation Personnel
2. Air Traffic Regulations
3. Meteorological Services
4. Aeronautical Charts
5. Telecommunication
6. Operation of Aircraft
7. Registration and Labelling of Aircraft
8. Airworthiness
9. Facilitation of Approach and Flight Handling
10. Communication System
11. Air Traffic Control Services
12. Search and Rescue Services
13. Aircraft Accident Investigation
14. Airport Classification
15. Flight Information Services
16. Environmental Protection
17. Air Safety
18. Transportation of Dangerous Goods

In contrast to supranational organisations like the EC, the ICAO does not possess sovereign powers. Insofar as the standards of the CHI are "self-executing" they do not need to be transformed into national law, but they have direct effect. Art. 5, 8, 15, 16, 20, 24, 29, 32, 33 and 36 of the CH have already been declared directly applicable by US courts. Courts have not yet made a decision on whether the amendments to the CHI are also directly applicable.

EC legislation can also be divided into primary and secondary Community law. The primary Community law includes the Treaties establishing the European Community which were based on international law. In contrast, the regulations and policies issued by the bodies of the

EC according to the corresponding provisions of the treaty are part of the secondary Community law (JAAG, 2003). Within the scope of international cooperation, soft law, which consists of resolutions, declarations, recommendations and similar statements, also plays a significant role. By contrast with hard law, it has no binding effect, but it can have considerable political leverage. In the context of European civil aviation, soft law is made by ECAC which has a purely advisory capacity. The ECAC has an external effect through recommendations, resolutions, guidelines and other conclusions.

With the Agreement of Cyprus the national aeronautical authorities have made a commitment to apply the Joint Aviation Requirements (JAR) of the JAA as "sole-codes". Since the JAA is no supranational institution with any legislative powers, the JAR have soft law character. The JAR are supplemented by the Acceptable Means of Compliance (AMC) and the Interpretative and Explanatory Material (IEM).

In contrast to the regulations and procedures of the ICAO the provisions of the EC are directly applicable to the citizens of the member states without any transposition into national legislation. It is neither permitted nor necessary to transpose them into national law. Hence, they directly intervene in the legislation of the member states, more than any other supranational regulations, and are therefore the most effective means to harmonise legislation (JAAG, 2003).

Like the regulations of the ICAO, those of the EC address primarily the member states. Such regulations are aimed at harmonising the provisions of member states. A direct unification is not paramount. Legislation is established by the national legislator according to the guidelines of the Community. For reasons of legal security the regulation has to be transformed into national law. In cases where these regulations are not at all or not properly applied by member states, where they are not sufficiently published or where conflicting national regulations are not suspended, national legislation still has to be interpreted in accordance with the regulations. Policy-compliant interpretation of national legislation may, by way of exception, show direct effect on citizens (JAAG, 2003).

The supranational air traffic law can be divided into three different levels: On the top level are the EASA regulations, on the level below the implementation guidelines and on the lowest level the certification specifications (CS). The CS generally correspond to the JAR (e.g. JAR-25 / CS-25). Since the EASA cannot issue the CS without the council and the parliament, the legal character of these provisions, which are mainly operational, is still unexplained. There is no "opting out" in the EASA Regulation.

12.4 Implementation of international regulations

In the USA, the route network and airfares were subject to state regulation until the end of the 1970s. This regulatory system was criticised by many economists. Liberal forces noted that the prices were excessive and that it was not possible to adapt prices to consumer demand. They also noted that competition was determined by non-price factors such as on-board catering, and that only air taxi companies had the possibility to operate exclusively on profitable routes, as they were not legally bound to the government regulations. The US Congress re-

sponded to calls for more competition within air traffic by deregulating freight traffic through the introduction of the Air Cargo Act in 1977. Related to passenger traffic it established the Airline Deregulation Act in 1978. Ever since, the USA expedites the opening up of the aviation markets at the national and international level using the term "Open-Sky-Policy" (WEBER, 2003).

In the course of the deregulation policy, the USA notified IATA that it would deprive its airlines of the permission to further participate in the IATA price-fixing conferences. Compared to previous praxis it has since been up to the airlines whether they participate in the IATA conferences or not. This meant that IATA's importance in pricing decreased. Worldwide, the focus shifted towards a greater competition between airlines (Hobe, 1998). In addition, in 1987 the European Conference of Air Carriers adopted a price system which only prescribes the margins for pricing, but otherwise gives the airlines a free hand to determine their prices. In developing countries, there is also an increasing tendency towards pricing by regional organisations. However, today, the main purpose of the IATA is still to determine prices for scheduled air traffic. Similar to the Bermuda Agreements mentioned earlier, most bilateral aviation agreements include a clause requiring the signatory states to base their prices on the tariffs determined by IATA.

The deregulation process initiated by the USA reached Switzerland some 20 years later. In 1998, the Swiss Federal Assembly decided to repeal Art. 103 of the aviation law, which required that domestic, continental and international scheduled flights that are of public interest be operated exclusively by a Swiss mixed-economy airline, in which the state had a financial stake (former Swissair). On June 1st, 2002 the agreement between the Swiss Confederation and the European Community of June, 21st 1999 entered into force. This meant that despite the Swiss refusal to enter the European Economic Area on March 14th, 1995 the Swiss aviation market was integrated into the competitive European aviation market. With six additional agreements the agreement on air transport that applies between Switzerland and the EC forms an overall package.

The bilateral agreements specified the conditions at which the opening-up of the Swiss market would take place. The aviation agreement was generally formulated so as to put Switzerland, in the area of air traffic, on a par with countries that have entered the EC so called "as-if" status (BENTZIEN, 1998). This approach of the aviation agreement is already expressed in the correspondence as per amendment 8 of the transit agreement between the negotiating delegations of the EC and Switzerland. This correspondence states that the EC and Switzerland take the opportunity of successfully concluding the negotiations about land transport to stress the importance of fertile cooperation, as well as liberalisation of air traffic. They believe that based on the "acquis communautaire" a satisfying solution has to be reached.

The core of the aviation agreement between Switzerland and the European Community consists of the regulations about traffic rights included in chapter 3. Based on reciprocity the Swiss airlines gain in a series of steps access to the liberalised aviation market of the EC through the agreement. The 3rd and 4th Freedom applies for the signatory states when the agreement enters into force (July 1st, 2002). Two years after the inception of the agreement

(July 1st, 2004), the Swiss airline companies receive the 5th, 6th and 7th Freedom. Finally, five years after the inception (July 1st, 2007) the contracting parties enter into negotiations about the 8th Freedom (Art. 15 paragraph 3 Civil Aviation Agreement). In accordance with Art. 21 of the aviation agreement, a committee of representatives of the signatory parties is appointed. This committee is responsible for the correct application of the agreement. The signatory parties carry out consultations within the framework of the joint committee and exchange the information that is necessary for the correct implementation of the agreement. The main objective of these consultations with regard to the relationship to third countries is to examine and consider appropriate procedures in the context of the "Open-Sky-Policy" pursued by the USA since 1978. In addition, the joint committee also deals with issues related to the formation of strategic alliances (BENTZIEN, 1998).

On September 1st, 2004, the new Art. 103 of the air transport regulation in Switzerland entered into force. This happened against the background of the intervention of the federal government regarding the concept of entrenchment of the Swiss national civil aviation in 2001, and the response of the EC committee to this comportment. The new Art. 103 is based mainly on the aviation agreement (Art. 13 and Art. 14) that stipulates that, if at all, state support is only granted under certain conditions.

It is difficult to reconcile liberalisation with national interests. In a liberal system, laws play only a minor role. Consistent liberalisation may conflict with national interests such as environmental protection, capacity utilisation of airports or the offer of a venture in regard to regularity, capacity and prices at which certain routes are operated (DETTLING-OTT, 1999).

12.5 Special aspects of air law

12.5.1 Definition and qualification of Air Law

The term "air law" is used synonymously with the term "air traffic law" and "aviation law" (BRINKHOFF, WINDHORN, 2008). Jurists with special aviation knowledge are using the general term "air law". Other peoples prefer the term "aviation law" to avoid misunderstandings with environmental protection.

The most common definition of air law can be quoted as follows: "Air law is the entirety of legal special standards which refer to the utilization of the space above the earth's surface which is filled with air by means of devices which remain in the airspace by virtue of the properties of air, and whose subordinate position in the special standards of air law seems necessary according to a reasonable point of view of traffic " (MEYER, 1961).

The qualification of air law is controversial. A distinction has to be made between air law and space law. The border line could be drawn at about 100 km above mean sea level (called Kaman-Line), where the aerodynamic forces lose their effects (Brinkhoff, Windhorn, 2008). Air law is classified as private air law and public air traffic law. Therefore air law is a mixed law subject. The private air law regulates above all matters of civil liability and insurance,

rights in aircrafts, the utilization of airports as well as questions concerning the neighborly law in terms of emission. The public air traffic law regulates above all the registration and the operation of aircrafts and airports as well as the associated questions of security and local regularity policies.

Air law is shaped by international rules. Multilateral and bilateral conventions overrule national air law (derogation). Therefore, the national aviation authorities have few possibilities to influence the air law itself. The strict hierarchy of rules in the air law can be represented as follows:

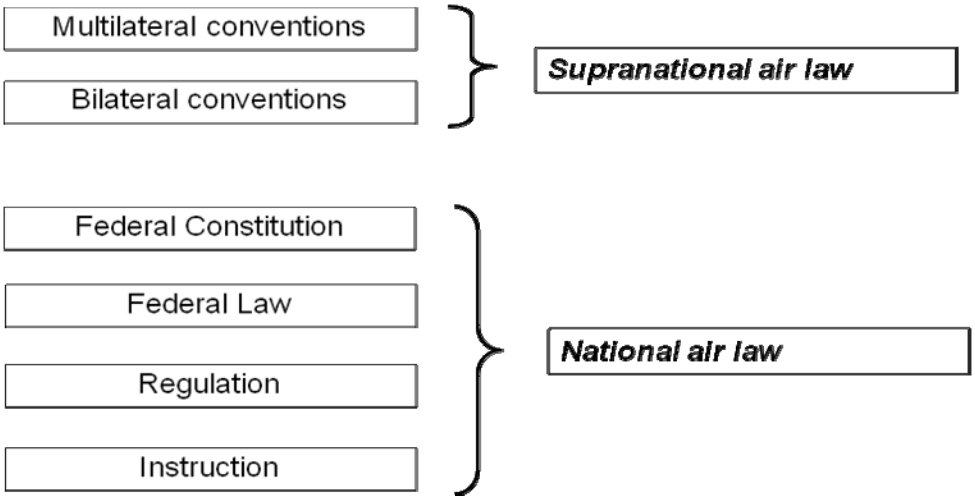


Figure 12.1: Hierarchy of rules in the air law
(MÜLLER, 2007)

The most important multilateral and bilateral conventions can be listed up in chronological order as follows:

- International conventions under public law
  - 1919 CINA - with prohibition of cabotage
  - 1944 Convention of Chicago (ICAO-foundation)
  - 1945 IATA Convention (190 airlines)
  - 1960 Euro-Control-Convention (above 7600m)
- Conventions in the international private air traffic
  - 1929 Warsaw Pact (limitation on liability)
  - 1975 Protocols of Montreal (special drawing rights)
  - 1997 EG-VO 2027/97 (commercially unrestricted liability)
  - 1999 Montreal Convention for the Unification of Certain Rules for International Carriage by Air (compulsory insurance for passenger seats)

12.5.2 Structure of the Airspace

Even in the skies freedom is not boundless. Especially in the vicinity of airports or on heavily travelled airways, air traffic is so dense that traffic regulations are of utmost importance. With the introduction of the Chicago Convention, and Annex 2 in particular, for the first time bind-

ing traffic regulations were set for civil aviation. Switzerland has adopted and partly even refined these regulations in the Rules of the Air.

Unlike in road traffic, in aviation also the third dimension, i.e. the vertical expansion, needs to be taken into account in regard to all regulations. For pilots it is therefore very important to be informed about the airspace structure and the traffic regulations. Violations of relevant regulations may be sanctioned just like driving a car on the wrong side of the road.

The airspace above a certain state territory is precisely defined in terms of its lateral boundaries by the territory's national frontiers. In terms of altitude it only ranges as far as the state can claim a legitimate interest. The upper airspace is the area above 7'500 m AMSL or FL 200 in which only fixed-wing aircrafts can fly. Special regulations and controls apply in this area. The lower airspace, however, is also strictly divided. Generally, two different types of classification apply:

- Classification of the airspace according to classes with the same terms of use
- Classification of the airspace according to types with the same function

The ICAO has combined both classifications and Switzerland has adopted this classification system. The next paragraphs will first consider the different airspace classes followed by a discussion of the different types of airspace.

In total, the ICAO has defined 7 airspace classes which are referred to using a letter designation from "A" to "G". Classes "A" to "E" are referred to as controlled airspace. Classes "F" and "G" are uncontrolled airspace. "A" represents the most restricted class - no visual flights are permitted whatsoever. Class "G", in contrast, allows for the maximum degree of freedom; flights may be conducted without radio or transponder. In principal, the airspace classes may be characterised as follows:

Class A: All operations must be conducted under Instrument Flight Rules (IFR) and are subject to ATC clearances and instructions. ATC separation is provided to all aircraft.

Class B Operations may be conducted under IFR, Special visual flight rules (SVFR), or Visual flight rules (VFR). However, all aircraft are subject to ATC clearances and instructions. ATC separation is provided to all aircraft. Note: not all airports that are subject to class B airspace allows (SVFR) Special visual flight rules.

Class C: Operations may be conducted under IFR, SVFR, or VFR; however, all aircraft are subject to ATC clearances and instructions. ATC separation is provided to all aircraft operating under IFR or SVFR and, as necessary, to any aircraft operating under VFR when any aircraft operating under IFR is in-

volved. All VFR operations will be provided with safety alerts and, upon request, conflict resolution instructions.

Class D: Operations may be conducted under IFR, SVFR, or VFR; however, all aircraft are subject to ATC clearances and instructions. ATC separation is provided to aircraft operating under IFR or SVFR only. All traffic will receive safety alerts and, on pilot request, conflict resolution instructions.

Class E: Operations may be conducted under IFR, SVFR, or VFR. ATC separation is provided only to aircraft operating under IFR and SVFR within a surface area. As far as practical, ATC may provide safety alerts to aircraft operating under VFR.

Class F: Operations may be conducted under IFR or VFR. ATC separation will be provided, so far as practical, to aircraft operating under IFR.

Class G: Operations may be conducted under IFR or VFR. ATC separation is not provided.

While Switzerland has adopted all 7 airspace classes into its aviation law, only 4 are currently being applied, namely G, E, D, and C. Other countries have limited the use of the airspace classes even further. Italy, for example, only uses classes A and G. These airspace classes are generally not altitude-dependent, meaning that airspace of the classes C, D, or E can also extend to the ground for example in case of control zones (CTR).

Besides being classified according to classes with the same terms of use, airspace can also be divided according to its function into so-called airspace types. Generally, a distinction is made between uncontrolled and controlled airspace:

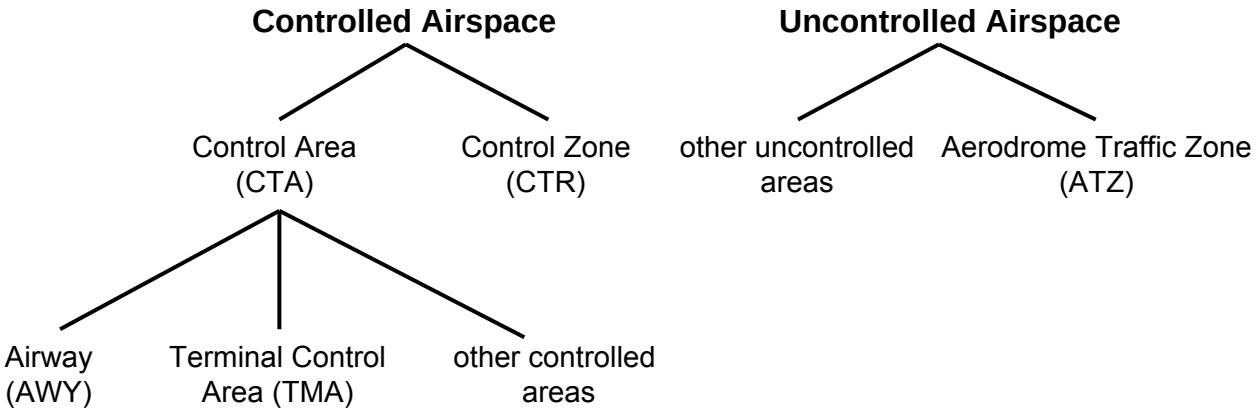


Figure 12.2: Controlled and uncontrolled airspaces (MÜLLER, 2007)

The control zones always start at the ground and reach to a specified altitude. In Switzerland, they are principally classified as airspace classes D or C and therefore require ATC clearance. All Swiss airports that offer air traffic management are protected by a control zone. The only exception is Samedan which has no control zone but a flight information zone (FIZ), a classification of airspace unknown by the ICAO. In order to protect aircrafts landing and taking-off

the aerodrome traffic zone (ATZ) is normally not a controlled airspace. An ATZ is only a controlled airspace if it is located within a CTR. The control area (CTA) is the generic term for the whole airspace comprising TMA, AWY and the rest of the controlled airspace, but not including the CTR. Thus, the airspace types may, for example, have the following configuration:

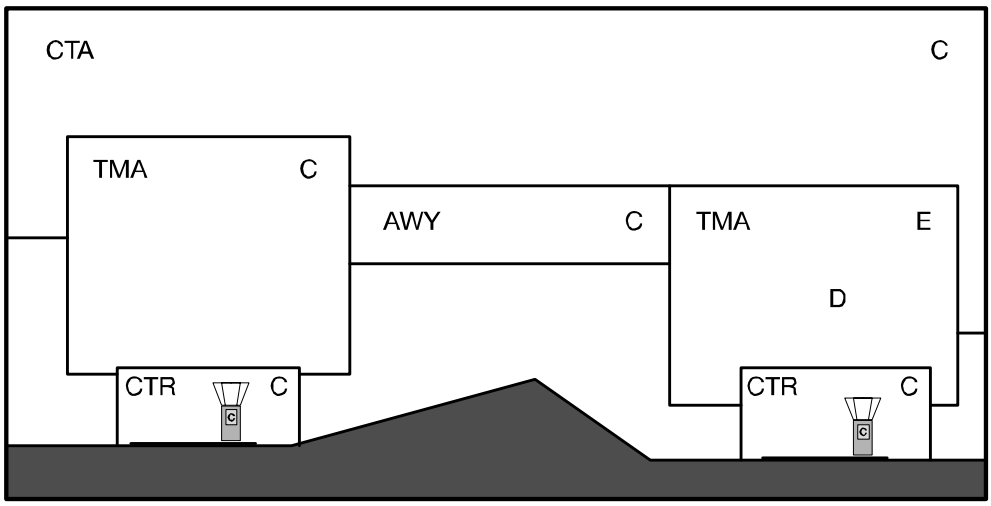


Figure 12.3: Airspace types
(MÜLLER, 2007)

12.5.3 Rules of the circulation in the air

The third chapter of the Rules of the Air includes in articles 6 to 37 numerous general provisions which will be discussed in the following. The fundamental principle is included in article 6. It states that a third party's life or property must never be put at risk. This principle does, for instance, also apply for hang-gliders and model aircraft. Should a collision occur between such aircraft, at least one of the two pilots has undoubtedly breached this provision.

Anyone who feels ill, tired, or is under the influence of narcotics, alcohol, medication, drugs, etc. and therefore is functionally impaired, may neither work as a plane crew member nor perform parachute jumps.

In case the pilot has no way of finding out the latest weather information – for whatever reason (e.g. lack of time, lack of access to phone) – he must not undertake a flight leaving the area of the airfield. Moreover, provision hast o be made for an alternative airport (which must be open!). In contrast to commercial aviation that requires fuel supplies which are sufficient for 45 minutes for piston aircraft and 30 minutes for jet aircraft, article 8 of the Rules of the Air just states that pilots need to provide for enough fuel supplies. If a private pilot needs to make an emergency landing due to lack of fuel, he has clearly breached this regulation, since he has to consider headwinds, traffic diversion, etc. as well.

Flights below flight level 100 may not exceed a flying speed of 460 km/h (250 kt) IAS without prior permission by the Federal Office or the appropriate air traffic services unit. Aircraft that need to fly at a higher speed due to their performance data have to maintain the lowest

possible speed in accordance with the respective flight condition; the relevant air traffic services unit has to be informed by the pilot in command about this.

For flights conducted under visual flight rules aviation law does not specify concrete measurable minimum distances in regard to approaching other aircraft. Both on the ground and in the sky aircraft always move to the right to avoid collisions. For flights conducted under instrument flight rules air traffic control ensures that there is sufficient distance between aircrafts by staggering the air traffic. A threat of collision must not exist at any time. The aircraft size or the type of its use (e.g. military or commercial aircraft) does not influence the right of way. However, it is reasonable that smaller aircrafts dodge larger and faster aircrafts. At visual flight an aircraft may conduct rolling motions (about its longitudinal axis) to indicate that it has noticed another aircraft. In Switzerland, the rules on distance and right of way are stated in the Rules of the Air and the Aeronautical Information Publication (AIP) as regulations for the prevention of collisions.

12.5.4 Liability and insurance in Air Law

In principal, aircrafts are safe means of transport and in relation to the kilometres they travel, they cause relatively few damage. In case of an accident involving an aircraft, however, normally questions related to liability and insurance become relevant at once. To answer these questions, first the different types of liability and the consequences for aviation need to be understood.

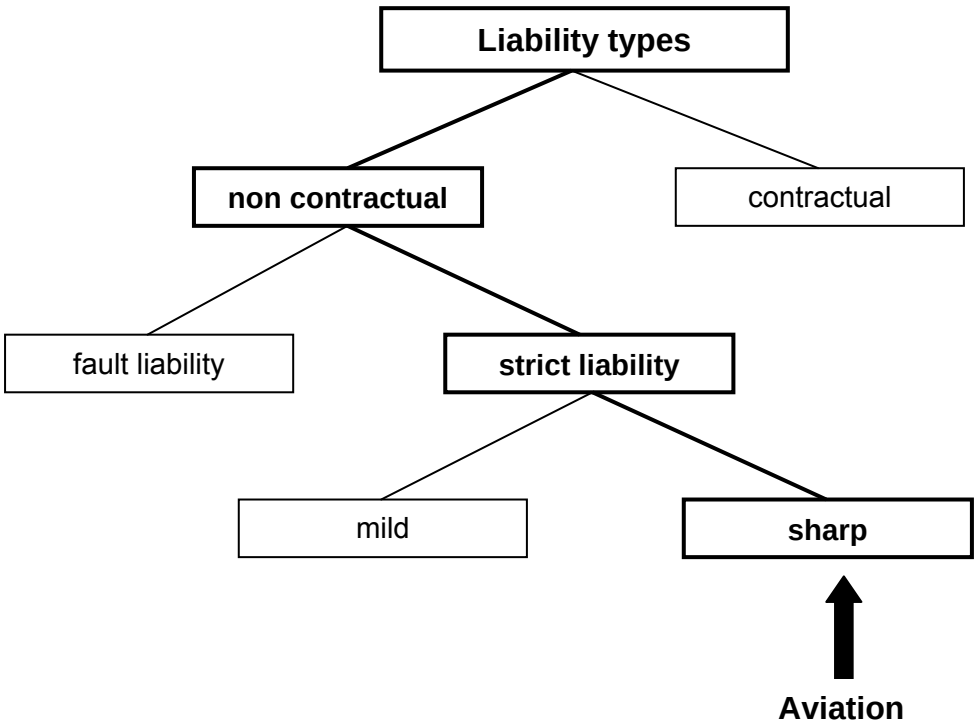


Figure 12.4: Liability types
(MÜLLER, 2007)

The operation of aircraft is subject to strict liability. Even the commissioning of an aircraft alone is considered as an induction of a dangerous situation, like it is also the case with motor vehicles. Independently of any fault, the holder of the aircraft is therefore liable for personal injury or material damage which has been caused to a third party by the aircraft. In this context, the holder of the aircraft is deemed to be the operator. The operator does not necessarily have to be identical to the owner (e.g. a bank or an industrialist) or the pilot (pilot in command).

Similarly, the holder of an animal is also subject to strict liability, but he is subject to a so-called mild liability for the consequences. This means that the holder of the animal is not liable, if he can prove that he has taken all reasonable measures to avoid any damage (e.g. providing information about a dangerous dog on a sign at the garden gate). As has been stated, regarding the operation of aircraft, however, strict liability applies. This implies that even if the holder of the aircraft has taken all possible precautions and is therefore not at fault, he is still liable for damages to third parties on the ground.

Third parties on the ground who have suffered damage usually do not have a contract of any kind with the holder of the aircraft and thus the non-contractual liability, i.e. the strict liability, generally applies. If student pilots, passengers or freight are being transported, a contractual relationship exists. In this case, the liability has to be assessed quite differently. The pilot is liable when flying for private purposes, the airline company is liable for commercial flights and the flight school for training flights. At the same time, it is now of major importance, with regard to liability, who is responsible for the damage. Therefore, the contractual relationships will be discussed in more detail in the following paragraphs. In cases of contractual liability the damage and fault (slight negligence is sufficient) have to be established. Furthermore, the correlation between damage and fault has to be proven. It is possible to exclude, through contractual agreement, liability for damages caused by slight negligence, but not for damages caused by gross negligence or deliberate act.

Depending on the type of flight, the aggrieved party may take action against different persons or companies. In contrast to road traffic, though, it is not possible that the aggrieved party sues the relevant insurance company directly. In the following, only those cases that are relevant for future private pilots will be discussed. Commercial flight, where the liability of the airline is most important, is therefore not considered. As for training flights, based on the service contract student pilots may take action against the flight school, but not against the insurance directly. It is up to the flight school to claim the insurance benefits. If the flight instructor has caused the accident through violating his obligation of due diligence that he has under labour law, the flight school may also take recourse action against the flight instructor. In connection with this, is has to be recognised that the activity of a flight instructor is a job prone to causing damage. This means that only in the case of recurrence, slight negligence will lead to liability. The student pilot may only take action against the instructor or the manufacturer of the aircraft on the basis of non-contractual liability; however, in this case he would have to verify among other things the fault of the instructor, or respectively, the manufacturer.

As for private flights, the issue of liability is comparable to that of training flights, but generally an additional distinction has to be made between the holder and the owner. The owner is usually covered by comprehensive insurance, so that he can, on his part, make an insurance claim.

As stated in article 125 of the Aviation Ordinance, the holder of the aircraft has to provide a guarantee that he is able to meet possible liability claims by an aggrieved party on the ground. Almost always this guarantee is provided through liability insurance. Thus, de facto a statutory insurance obligation exists for the holder of the aircraft for such damages. Article 132 a of the Aviation Ordinance provides for a further guarantee by the aircraft holder: he has to ensure 250.000 Special Drawing Rights per passenger for potential liability claims from travellers. For non-commercially used aircrafts the Special Drawing Rights may be reduced to a number of 100.000, if the take-off weight does not exceed 2.700 kg. For damages to the aircraft itself, no statutory insurance obligation exists, but a comprehensive insurance, covering this sort of damages, may be arranged by the holder of the aircraft on a voluntary basis. Charterers of an aircraft should obtain information about what sort of comprehensive insurance is in place before using a hired aircraft. If a charterer returns a damaged aircraft he has to cover the damage himself or, if a comprehensive insurance is in place, pay the deductible, the loss of bonus and the operating losses that result from the standstill of the aircraft, unless another agreement has been made.

12.5.5 Passenger rights

The EC-Regulation No 261/2004 of the European Parliament and of the Council, dated 11th of Februrary 2004 has established common rules on compensation and assistance to passengers in the event of denied boarding and of cancellation or long delay of flights. These rights can be divided in four categories:

- Denied boarding
- Cancellation
- Delay
- Other demands (not treated in the EC-Regulation 261/2004.

In the first three cases the operating air carrier shall immediately compensate the passengers as follows:

a) EUR 250 for all flights of 1500 kilometres or less

b) EUR 400 for all intra-Community flights of more than 1500 kilometres, and for all other flights between 1500 and 3500 kilometres

c) EUR 600 for all flights not falling under a) or b)

The compensation shall be paid in cash, by electronic bank transfer, bank orders or bank cheques or, with the signed agreement of the passenger, in travel vouchers and/or other services. The distances shall be measured by the great circle route method.

Review Questions

- What are the most important international and supranational aviation organizations?
- How can the 9 freedoms of the air be described?
- What does the Chicago Convention and its annexes regulate?
- Which are the two different possibilities to classify the airspace?
- How many classes of airspace has the ICAO defined?
- What are controlled and uncontrolled airspaces?
- What are the most important rules of the circulation in the air?
- How can the aviation liability be defined in the system of liability types?
- What are the passenger rights in aviation according to the EC-Regulation?

References

Bentzien J. (1998) Die Zuständigkeit der EU für Luftverkehrsabkommen mit Drittstaaten. In: Zeitschrift für Luft- und Weltraumrecht, 47/1998, pp. 439.

Breitenmoser S., Husheer A. (2002) Europarecht, 2nd. ed., Zürich.

Brinkhoff S., Windhorn D. (2008) Einführung in das Luftrecht. In: Hobe S., von Ruckteschell N. (Eds.), Kölner Kompendium Luftrecht, Band I Grundlagen, Köln/München.

Dettling-Ott R. (1991) Marktöffnung im Luftverkehr, special issue of Zeitschrift für Wirtschaftsrecht and ASDA/SVLR-Bulletin.

Erler J. (1967) Rechtsfragen der ICAO: Die Internationale Zivilluftfahrtorganisation und ihre Mitgliedstaaten, Köln.

Froehlich A. (2008) European Civil Aviation Conference (ECAC). In: Hobe S., von Ruckteschell N. (Eds.), Kölner Kompendium Luftrecht, Band I Grundlagen, Köln/München.

Grundmann S. (1999) Marktöffnung im Luftverkehr, Baden-Baden.

Haanappel P. C. (2008) Die International Air Transport Association (IATA). In: Hobe S., von Ruckteschell N. (Eds.), Kölner Kompendium Luftrecht, Band I Grundlagen, Köln/München.

Haldimann U. (1996) Luftverkehrsbeziehungen der Schweiz zur EU. In: ASDA/SVRL-Bulletin 121, pp. 20.

Hobe S. (1998) Der offene Verfassungsstaat zwischen Souveränität und Interdependenz, Berlin.

Jaag T. (2003) Europarecht: Die europäischen Institutionen aus schweizerischer Sicht, Zürich.

Jäger K. (1995) Überblick über die Joint Aviation Authorities. In: ASDA/SVLR-Bulletin 119, pp. 48.

Larsen P. B., Sweeney J. C., Gillick J. E. (2006) Aviation Laws: cases, laws and related sources, Ardsely NY.

Meyer A. (1961) Luftrecht in fünf Jahrzehnten, Berlin.

Müller R. (2007) Recht der Luftfahrt, 8th ed., Alpnach.

Müller R., Schmid O. (2009) Normen der Luftfahrt. In: Müller R., Wittmer A. (Eds.), Auswirkungen supranationaler Regulierungen in der Luftfahrt, CFAC-SZL 1, Zürich/St.Gallen.

Oppermann T. (2005) Europarecht, 3rd. ed., München.

Riedel D. (2006) Die Gemeinschaftszulassung für Luftfahrtgeräte. Diss. Heidelberg, Berlin.

Schwenk W., Giemulla H. (2005) Handbuch des Luftverkehrsrecht, 3rd. ed., Köln/Berlin/München.

Tietje C. (2001) Internationales Verwaltungshandeln, Berlin.

Weber L. (2003) in: Bernhardt R. et al. (Eds.), Encyclopedia of public international law, Amsterdam.

Wenglorz G. (1992) Die Deregulierung des Linienverkehrs im Europäischen Binnenmarkt, Heidelberg.