CRISIS STRATEGY FORMATION IN THE AVIATION INDUSTRY

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The article generally defines the subject of the strategy and adverts to the strategy in the air transportation. It specifies the conditions of formation and ways of formation, implementation and modification of the strategy itself. Next, the differences in classification of kinds of crisis phenomenon in the crisis management and air transportation are shown, and the correlations between them are described. At the end of the article the order of steps needed for creating crisis strategies in aircraft industries is suggested.

K e y w o r d : Strategy, Crisis Strategy, Crisis Effects, Crisis Effects in Aviation Industry

1 INTRODUCTION

A good and smart industrial strategy represents an impulse for final success, opposite a wrong or misunderstood strategy can bring the company to the bankrupt. When building a successful business it is important to understand what the strategy is formed from. At the same time it is important to avoid the situation, when any decisions or plans are marked as strategic because most of them are supposed to help the strategy to be implemented and defined. It is important to present the strategy effectively and clearly to all those who participate at its implementation. In strategy the answers to the following questions are hidden:

- What should be done,
- What way it should be done,
- By what means it should be done.

2 STRATEGY

The origin of the word "strategy" comes from Greek "strategos" (the army general) and in a general context it represented the art and the science of war operations management and army commandment. Today the term of "strategy" is defined by several dictionaries as the science of war operations planning and leadership. There is a lot of analogy between army actions in the battle field and the modern company in the environment of competition. During the 20th century, strategy penetrated from the army to the world of economy and it became an inseparable part of it.

There are many definitions to strategy. One of them which belong to the oldest ones says that the strategy is a definition of essential long term objectives of company, ways to achieve them, and the allocation of necessary resources needed.

This general definition presents the strategy as a complex of aims, tools and resources. Other authorities define the strategy as a model or plan, into which the main aims of the business, its policy and activity are integrated into a coherent unit, but it is understood as a united, complex and integrated plan designed in order to provide main goals of the company to be reached. Strategy is accented as a way to achieve objectives by this definition.

Beside this wide definition of the strategy it is possible to specify even narrower definition, where strategy is seen as a way, a method, a mean, a tool for achievement of predefined objectives, where there are more ways to achieve the proposed aims. As it is clear from previous definitions, the planning is an important part of it. Strategy itself comes to exist as a result of rational reflections even before the company starts to act really. This circle of opinions belongs to the traditional views of the strategy.

2.1 Strategy Formation Conditions

Internal and external environment changes have to be more and more often accepted when strategic objectives are formed. Needs to readjust, improve and innovate the products on regular base are evoked by those changes. Long term objectives formation is replaced by planning of trends for better and faster reaction to eventual unexpected changes. In the context of planning trends, transformation management is talked about.

Today the approach to strategy formation is changing permanently. Strictly formalized and algorithmic processes are on the decline. The logic way of thinking is not condemned, but more space is given to creative and intuitive way of thinking.

The starting point for strategy formation is vision as a real idea about the wished future status, clearly defined purpose and mission formed. Based on these things, decisions can be made about strategic plan as a plan of essential and long term objectives and trends.

2.2 Methods of strategy formation, implementation and modification

Strategic plan as a long term plan of essential objectives and decisive actions focused to the strategic intention presents a particular form of strategy. Still the approach to strategic plans content and form change influenced by the environmental evolution. Experience with the strategic planning at the international security companies brings a method of so called rolling planning which has became a break-through at state authorities and administrations recently. In this way of the plan formulation the strategic objectives are defined for 4 to 5 years forward, when for the first two or three years the plans are more detailed. The annual plan coming out from it is elaborated in a very detailed way. Next year after the results are evaluated and the development of the essential factors is reviewed the whole system is move on for the next year, i.e. the strategic objectives and the aims for the

coming 2 or 3 years are specified more exactly and again the detailed plan for the closest year is developed.

2.2.1 Strategic management

Strategic management can be described as a continuous process in a frame from which the following are done:

- **Environment analysis** that enables to evaluate the up-to-date status and to create prognosis of the evelopment for case that it will be continued following the original strategy.
- **Strategy formation** coming out from the information about the actual strategy implementation and from the threats and the opportunities analysis, its own resources and potential. The mission, new strategic objectives are formed and the frame for particular processes decisions is established for the strategy implementation.
- **Strategy implementation** belongs to the most demanding phases and it presents the process of particular sections of organization planned preliminaries for the strategy implementation. The processes get more concrete there, the resources are gathered, the budgets are created and the steps are prepared (tasks and technique descriptions etc.)
- **Realization, evaluation and control**, when the collateral sectional processes of monitoring, recognition, evaluation and eventual correction of the implemented processes are put to practise. Other model of strategic management supposes that more variants of the strategy are being prepared parallelly, where in certain cases those can be prepared parallelly for some time. This method is quite demanding regarding the resources. On the other side it enables more flexible reaction to environmental changes.

2.3 Types of strategies

The strategy leads the organisation to certain way of behaviour which reacts to the external and internal environment status and to their expected evolution. Basic types of strategic alternatives can be specified according to this. Concrete characteristics of real acting of organization in particular environment unfold from those alternatives. The strategies are as follow:

- Strategy of expansion,
- Strategy of stabilization,
- Strategy of decline,
- Combination of some of them.

Processes in particular functional areas focused to seeking methods and ways to achieve particular strategic objectives through basic functional levels unfold from these basic strategies. According to that the following strategies can be defined:

- Research and development strategy,
- Financial strategy,
- Production strategy,
- Marketing strategy,
- Personal strategy etc.

2.4 Strategy and air transportation

Air transportation strategy is developed, implemented and consequently controlled in various areas of the air transportation. The particular strategies are formed based on accepted regulations and standards issued by both international and national for air transportation higher security and protection. The crisis strategies mainly, but also standard traffic strategies belong there. Other strategies are being formed based on situations that emerge at a moment at the airport (mostly crisis strategies), at the air crashes, hijacks, bomb attacks etc.

3 CRISIS EFFECTS

The origin of term “crisis” can be found in Greek “krino” which in English means “to choose” “to make decision”, “to decide between two different options”, as e.g. success-failure, justiceinjustice, life-death. Later a word “crisis” was derived from it, with help of which a decisive moment or time was expressed, the decision itself or even difficulties. Slovak “kríza”, Czech “krize”, English “crisis”, Russian “krizis”, French “crise”, German “Krise” etc. were all derived from “krisis”.

Any crisis has negative impact to each human being, who is an employee of a company or other organization, he or she is a part of a nation, citizen of a state, a member of some wide international community and humankind. The crisis which appears in various subjects affects him more or less directly or indirectly. It happens even more than he or she notices or admits.

Any object can be influenced by crisis, that is why the crisis, its reasons and its solution, are of interest to psychologists, sociologists, economists, political scientists, experts at management and at many other areas.

Crisis management environment has not been complexly defined yet in terms of terminology and law. As the most general terms are seen “the crisis” and “the crisis effect”.

3.1 Basic terms

Crisis effects can be characterised as exceptional occasions, where in some cases it can be that the exceptional occasion is a starter of it. They are causes to changes in the quality of relations and ties between units. The impacted system is pushed towards adjustment to new conditions which have changed in its inside, or eventually in the environment where it exists. Characteristic of most of the mentioned changes is in degradation. They damage the impacted system,

eventually the subject, in some special cases can even bring some features of development and some trends. In consequence to the mentioned facts the following definitions can be accepted:

- **Crisis** is a difficult and dangerous status or actions sequence the negative impacts of which can seriously endanger their functionality or existence. At the same time the term is used as general term for all crisis effects.
- **Crisis situation** is a sequence of processes and effects delimited in time or place which cause defect in the balance. It is a situation the character of which and the negative impact of which and the extent of which harm or change economic or social performance of state, region or concrete subject.
- **State of crisis** is a legal state declared by authorities in certain region in order to solve the crisis situation in direct relation to its characteristic and extent. This state differs from a stable state and it harms the whole system or its components. It is connected with failure of generally valid processes, tools and mechanisms of management and it requires an application of crisis management principles including temporary limitation of essential rights and freedom. Crisis management defines several kinds of state, which are:
  - war,
  - state of war,
  - state of emergency,
  - state of need.

Taking into account the wide range of use of the term of crisis today, in common language but mainly in language of science and political practice, it needs to be emphasized the fact that it is impossible to accept a clear definition valid for all sections of social practice, for expert groups and scientist and research community. For such a common definition it is necessary to reach a consensus of various subjects, science, but social, political and economic practice, too.

3.2 Crisis effects in aviation industry

At the air transportation the crisis effects emerge as well as at the other systems. But in the area of aviation there are some differences from crisis management which are:

- **Time** for crisis solution in aviation is very short. Seconds decide what the result of the crisis effect will be. It is known that the higher the aircraft is the more time for solution is available.
- **Place** where the crisis effects in aviation emerge: Most of crisis effects happen when the aircraft is starting, taking off, and landing, e.i. immediately close to the ground.
- **Consequences** of crisis effects are many times bigger, but mainly catastrophic due to huge material, financial damages and lives loss. The crisis effect of a situation from aviation point of view is an accident which is accompanied with endangering security, fluency or effectiveness of air transportation performance. There is a committee constituted by bodies of crisis management which deals with solution and coordination of crisis effects in civil aviation. The committee confirms crisis plans of security subjects.

3.2.1 Crisis effect in aviation classification

There is an exact classification of crisis effects in aviation. Aircraft crisis effects are defined by regulation L-13 “Air Crash Investigation” has its international mutation issued by ICAO as Annex 13. Those are:

- Accident,
- Serious Incident,
- Incident.

Based on this regulation it is important to define a crisis effect called “exceptional event in aviation”. It is a general term for any crisis situation or crisis effect in air transportation.

- **(Air) accident** is an event which comes to exist during the traffic since the moment of any person boarding with intention to fly until the moment when these persons leave the plane. It is an event during which:
  - the person is badly or deadly insured,
  - the aircraft is damaged, or its construction is corrupted which influences its firmness, performance, or flight characteristics of the aircraft itself;
  - the aircraft is missing or is in some inaccessible place.
- **Serious accident** is such a kind of incident, when the circumstances showed that there was high probability of accident which was in connection with the piloted or pilotless plane performance.
- **Incident** is an event, which is different from the accident and is in connection with the aircraft performance, which influenced or might influence the air traffic security.

3.2.2 Relations

Crisis effects appear to be based on one or more mistakes made in aviation. Various mistakes can be classified as potential source of danger which leads to the crisis effect. The existing crisis effect can have secondary sources of danger, which have developed during the existing event or as consequence of the existing event. For understanding an example of clash with birds can be mentioned. During takeoff a bird is sucked into the engine which causes the engine damage. Primarily the threat is the damage or total destruction of the engine while the secondary threat is the aircraft crash.

3.3 Reasons of the crisis effects in aviation

In the past crisis effects happened mainly because of aircraft technologies being not perfect enough. Today various reasons of crisis effects exist. According to the character of the origin of crisis effects those can be divided according to factors that caused them to these factors:

- **Human factor** means everything that is in connection with a man and his or her acts. The negative effect of human factor can cause that latent conditions will come to exist due to incorrect decisions, organization, violation of regulations, irrelevant reaction to situation that emerged the reason of which is stress or lack of sleep.
- **Natural factor** is natural effect influence to aircraft. Those effects are of various and often hardly predictable intensity and power. The performance of them can influence even running crisis situation, but they can also become a primary reason of crisis situation coming to exist. The natural effects can appear at the interaction with human or technical factors. Among the most common natural effects that often appear belong the following:
  - Bad Weather,
  - High Traffic of Birds,
  - Lightning,
  - Snowfall,
  - Rime (Black Ice),
  - Volcanic Activity,
  - Earthquake.
- **Technical factor** presents influence of technical equipment and devices onto aircraft. In aviation it can be an engine failure, hydraulic, electronic or navigation, ground-based, homing or communication systems failure.

  Even though there is an outstanding progress in technologies development in aviation there can still be found hidden risks in construction, production and maintenance of aircraft. The malfunctions usually appear in certain period of the parts lifetime or those are caused by low quality maintenance of aircraft.

  It is proven that in case of most aircraft crisis effects more than only one factor is present. It means that the crisis effect is always certain consequence of several bad luck incidents during which the mistakes are gathered. Each such a mistake by itself is meaningless.

  According to the international organization ICAO the crisis effects in aviation emerge for following reasons:
  - Communication on Air,
  - Ground Operations,
  - Leaving the Runway or Being too Long on the Runway,
  - Break into Runway,
  - Flight Disposition,
  - Air Space Disturbance,
  - Clash with Birds,
  - Turbulence,
  - Piloted (led) Flight to the Ground,
  - Loss of Control,
  - Weather,
  - Fire and Smoke,
  - Loss of the Flight Distances etc.

3.4 Possible consequences of crisis effects in aviation

Crisis effects in aviation come to exist even for trivial mistakes and deficiencies that lead to catastrophic dimensions. Those mistakes can be made by the staff in the airport or by the aircraft staff or by mistake of the aircraft technologies. Those technologies are very sensitive to influence of various factors, no matter if the climate ones or technical ones, and thus some crisis effects emerge cause by bad behaviour to the technologies or by their bad setting.

Crisis effects emerge in various places and in various flight phases. Most often they appear during the start, take off and landing. But even in air space, on the way to runways and inside the airport buildings.

As it has already been mentioned the consequences of crisis effects are catastrophic, because as the result of the crisis effects there are material damage like aircraft damage, damage of technologies and devices, buildings, bridges or loss of lives or ecologic consequences like ecologic accidents, fauna and flora damage, the sea and water pollution.

3.5 Crisis strategy forming conditions

In previous parts the differences between the crisis management and the aviation were presented. Similar differences are applied at the strategy for aircraft industry formation process because this plays out in specific environment. It is a huge space which has to be monitored and watched and even a very small mistake can lead to catastrophic consequences in a very short time period, where seconds often decide.

Crisis strategy formation in air transportation depends on more factors which have to be taken into account and which are as follow:

- the air space in which the air transportation is performed. It is a huge space which can be divided both vertically and horizontally,
- planes different in size and shape, in technical parameters and construction form one another,
- control panels and devices located on board and on the ground as well. The matter is its sensitivity, functionality, setting, communicative abilities, maintenance,
- authorities and institutions dealing with aviation,
- airports and their size, connection with a city, equipment and structure,

- staff on the ground and on board, their skills at language and phraseology, their reactions to effects that emerge,
- particular state regulations.

Based on the analysis of these factors which caused the crisis effects it is possible to form the strategy. When forming it the above mentioned factors have to be taken into account, but also the reasons the crisis effects originate from.

Crisis strategies in air transportation have to be formed so that the air transportation will be more and more safe and secure. As the best solution of crisis effects would be the replacement or elimination of reasons of their origin in air transportation. They have a huge influence to safety and security, effectiveness, and regularity of air transportation. This is not so definitely possible. The reasons might be replaced or eliminated by:

- regular training of the staff and the pilots for various situations in air transportation caused by crisis effect having emerged,
- regular training of the gained skills and knowledge on the flight simulators,
- continuous update of flight simulators software for new and new crisis situations,
- the staff and pilots trainings together where each pilot would train with ground staff person so that they could train their readiness for situations that can come to exist,
- regular maintenance and controls of aircraft,
- technical features and aircraft equipment improvement.

New regulations, rules, standards can be created by new strategies forming. Those define the crisis effect, its latent and primary indications and in final consequence even the way of its solution. Those regulations, rules and standards should be unified for all participants of the air traffic.

4 CONCLUSION

The aircraft industry presents a specific area for crisis strategies forming even though it is performed in a very large space, which can be hardly managed from one place. For this reason the regulations and the processes in all the air space should be valid for all the countries the same, they should be respected by all, because the regulations and rules and standards present a kind of strategies in aviation which take care of safety and security in transportation.

When a new reason of crisis effect appears, it should immediately become the subject of crisis strategy or the existing strategies should be extended. The aircraft industry should be improving continuously as it happens in other branches. Mainly the technological improvement in security and safety areas, which would lead to elimination of crisis effects.

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