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The challenges facing the aviation industry managers in crisis. Logistics management strategies and teamwork management

Wyzwania stojące przed menedżerami branży lotniczej w kryzysie. Strategie zarządzania logistyką i zarządzanie pracą zespołową

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Abstract. In this article, the authors give general overview of the effect of the pandemic crisis on the aviation industry. The current pandemic crisis seriously affect the aviation business, consequently, affect the logistic chain all over the world especially in the second half of 2019 early 2020. As aviation industry, plays a major role in transportation logistic all over the world, the authors also, analyzed the impact of manner of managing the business during the crises to cope with difficulties and reduce the total company losses. They believe that a good and successful manager who determines the company's strategy and perceptions are able to rescue the industry by means of finding alternative methods for maintain business and reduces total losses. The ability of management to be agile comes to work in such situations by choosing the exact team and exact policy. The authors conducted a survey to answer the main two questions: which of the management strategy is more adaptive for aviation organizations in crises? And what is the impact of the team management on the management strategy in crises? The Survey show that the best strategy for managing maintenance and Repair Organizations MRO is Alliances. Also, Survey reflect the importance of teamwork management in crisis to cup with negative consequences.

Keywords: COVID-19, Logistic Management, Strategy, Crisis, Teamwork

Abstrakt. W artykule autorzy dokonują ogólnego przeglądu wpływu kryzysu pandemicznego na przemysł lotniczy. Obecny kryzys pandemiczny poważnie wpływa na biznes lotniczy, w konsekwencji wpływa na łańcuch logistyczny na całym świecie, zwłaszcza w drugiej połowie 2019 roku i na początku 2020 roku. Ponieważ przemysł lotniczy odgrywa główną rolę w logistyce transportu na całym świecie, autorzy analizowali również wpływ sposobu zarządzania firmą podczas kryzysów, aby poradzić sobie z trudnościami i zmniejszyć całkowite straty firmy. Uważają, że dobry i skuteczny menedżer, to taki który określa strategię firmy i jest w stanie uratować przemysł poprzez znalezienie alternatywnych metod utrzymania działalności i zmniejszenie całkowitych strat. Zdolność zarządzania do bycia skutecznym (odnoszącym sukcesy) sprawdza się w takich sytuacjach poprzez wybór odpowiedniego zespołu i odpowiedniej polityki. Autorzy przeprowadzili badanie, aby odpowiedzieć na dwa główne pytania: która ze strategii zarządzania jest bardziej adaptacyjna dla organizacji lotniczych w kryzysach? I jaki jest wpływ zarządzania zespołem na strategię zarządzania w kryzysach? Badanie pokazuje, że najlepszą strategią zarządzania organizacjami utrzymania ruchu i napraw MRO jest sojusz. Ponadto, badania odzwierciedlają znaczenie zarządzania pracą zespołową w sytuacjach kryzysowych z negatywnymi konsekwencjami.

Słowa kluczowe: COVID-19, zarządzanie logistyczne, strategia, kryzys, praca zespołowa

Introduction

Nowadays, most countries all over the world live side by side along with progressive acceleration and escalation of Corona virus (Covid-19), which is still spreading and causing a significant increase in human fatalities from different ages and categories. Comparing the consequences of this crisis (disaster) to others which hit mankind, we can conclude that the consequences of this pandemic certainly are similar to others from the perspective of fatality rates as of today nearly 2 million death cases. However, the peculiarity of this pandemic is the lockdown of 90% of the world starting from schools, universities, economies, which had a negative impact on the productivity of factories and companies, travel & tourism ending with national and international movement of passengers across the border. This fact particularly, caused the closure of airports and grounded thousands of aircrafts world-wide. This act has had huge consequences and created lots of problems for the aviation maintenance field. In this paper the authors will try to summarize the effect of Covid-19 pandemic on the aviation industry field. Additionally, IATA does not expect air traffic to regain pre-crisis levels before 2023. A Survey was performed to determine the aviation companies' behavior during the current crisis period, the best strategies which can be applied during the crisis and to validate the management model in crisis which was developed by the Authors. Based on the Survey results, the best Management Strategies during the crisis period were determined and further described. The main goal of this article is to describe the impact of the COVID-19 Pandemic on the aviation industry as well as the Management behavior to cope with this impact. Moreover, the Authors via the performed survey determine the best strategies to manage the aviation business during the crisis.

The role of management in a crisis time

Reviewing the statistical data, unfortunately, the field of aviation with all its branches has incurred successive losses. Moreover, The International Air Transport Association (IATA) has predicted that the Covid-19 crisis will lead to incur losses to airlines of about 358 billion US dollars in 2020 only [7]. This article is not about the numbers related to the consequences of this pandemic situation but about the problems of managing the aviation industry during this crisis. It is impossible to talk about the crisis without paying big attention to the role CEO or the executive manager of a company, because it is the most powerful and thought-after title in business, more exciting, rewarding, and influential than any other one. Many articles and research have been written about the CEO, starting from the skills needed and finishing with the duties such as “setting the strategy,” “shaping the culture,” and “getting the right team”.

In order to show which mindsets and practices are proven to make CEOs most effective, we studied performance data on many CEOs, and we tried to figure out most of the main reasons that made them successful or might have caused their companies to fail and go bankrupt. In the crisis time everything is under risk and every decision could be the last one and everyone hopes for the wisdom of the leaders, their knowledge, experience, behavior, and outstanding qualities that have not been discovered yet. The manager could be very smart and have good strategies but could have incorrect behavior and this can break the company, especially in a crisis time [2].

Selfishness, deception, racism, arrogance, excessive self-confidence, competition, obstinacy, and hasty decision-making are the morals and actions that have brought down many international companies.

The real story of Bombardier economic crisis still hidden the data is still behind the walls. Many researchers and analyzers are comparing this crisis with the last economic crisis in 2008 [9]. Even with the same general similarity between them from the point of view of unpredictability, disintegration and huge financial losses, the authors cannot agree totally that this perception is right as far as the reasons and consequences are not the same. The social reaction and total lockdown which the world faced in March-June 2020 was absolutely new solution which in its turn led to more economical losses. Moreover, the 2008 recession devastated financial markets around the world at once and totally. The aviation field is the most sensitive business, and any crisis will affect it deeply. This is a nightmare that haunts investors and managers of the aviation industry. Without a doubt, all responsibility lies with the manager, who determines the company's strategy and perceptions. Before dealing with external problems, we must know that within us we have the right team and a strong manager at all levels, capable of emerging from the crisis. In fact, this is what the authors seek in this article, thus the analysis of the education obtained by

the manager, his skills, knowledge, experiences are quite important. Based on the stated above, a few questions raised:

- is the manager today able to develop strong strategies to confront the crisis and which Strategy more adaptive for the aviation industry that can withstand a crisis?
- what qualifications must be in the manager and which management model he must apply in the crisis periods?

Stated that for moving forward in a crisis, the managers should demonstrate the following four behaviors. First one is to decide with speed over precision, second adopt boldly, the third reliably deliver and the last one is engage for impact [10], [16].

Review of the epidemics and the pandemics recurrences. Management Control Strategies

It is obvious for everybody that the history is repeating itself, but to a certain degree of trust, we can assume that most of the students and researchers never study in depth and in details the history in its difficult economical stages, whether wars or epidemics.

That study should be from an economic point of view that contributes to the development of ideas through predictions and foresee what might happen in the future, what strategy should be followed if the history repeats itself. The Italian diplomat, philosopher and writer *Niccolò* stated that whoever considers the past, and the present is driven by the same desires and passion, by deep study of the past, it is easy to foresee what is likely to happen in the future in anywhere and to apply those remedies that were used by the ancients, or, to devise new ones from the similarity of events if none are found [12].

Without any exaggeration, one mistake in the aviation business could be the last, in this game there could be no more chances. Therefore, the aviation industry managers should be unlike other managers, their skills, educational and cultural attainment should be stronger than others, and only the higher level of knowledge will emerge them to make the right decision to save the company. This fact does not mean that the value of experience should be underestimated, but there is no doubt that you will go through stages and situations in which you never experienced, and you did not know them before, and only knowledge and knowledge of decision-making will make you the best leader in your field. From the authors point of view, the qualified leader or the manager should have sufficient amount of political science, psychological science, science of history, science of geography, religion science and should speak many languages to be able to contact and realize the market of different regions and be aware of different mentalities, for example,

it is difficult to manage company where most of the employees are Asian origin, unless the manager knows the Asian mentality.

Aviation has been the heart of globalization. It caused expansion of the trade volume, the speed of travel and intergovernmental relation; however, in recent years with the politicization of aviation, it has become a new form of soft power aimed at pressuring national carriers and their governments in international disputes, including Brexit, the One-China Policy and US sanctions on Iran [11].

Nowadays, everyone knows the competition between Airbus and Boeing. Boeing has always protested the extent to which Airbus has received subsidies in the form of loans (Flight International Magazine, 2019). While France argues that Boeing receives illegal subsidies through the military, research contracts and tax exemptions, each of the two companies tried to influence other countries that have a historical influence or economic alliance in purchasing their aircraft. Today, the leader of the company should be aware of the political situation in the country in which he wants to invest and to know the form of government in that country, its alliances, the rate of growth, the rate of bribery and political stability. All this contributes to knowing the risks and crises that you can go through and how to overcome them. Moreover, the current Covid-19 crisis has pushed the airline industry into a tight corner, with direct effect on the financial liquidity. Nevertheless, the Covid-19 proposed some opportunities to re-position airline's maintenance strategies [3]. The authors assert that, the main strategy could help the aircraft maintenance company for surviving in the current pandemic:

- The Alliance: the Alliance is sharing economic risks between two or more companies and that can help mitigate the exposure to downturns and unexpected shifts in customer demand. This is especially true when entering the alliance with a company that has established itself in a market that considered as desirable [8].
- The Expansion: is one of the best strategies that an MRO organization must achieve, not only on the continent where they are located at but to open other filial and hangars on other continents.
- Transition from customer to partner.
- Increase the MRO activity. It gives the opportunity to turn your maintenance organization from firefighting mode to the management by exception mode with total control of the cost of such a decision. This process requires good planning, taking into account the available resources during different stages of the crisis and the designated/ intended short-term operations to adapt to the corresponding context.
- Consulting. Short and long-term goals: casting a customized approach to achieve predefined short- and long-term goals, by performing a gap analysis to discover & identify the root cause and arrive on recommendations for solving the problems.
- The Authors conducted a survey to determine:

- The aviation companies' behavior during the current crisis period.
- The best strategies which can be applied during the crisis.

The survey was addressed to 67 managers most of them are top and middle level of management from different aviation companies located in Europe, Canada, USA, Brazil, Russia, Middle East, Africa, and Asia. 45 responders out of 67 filled in the survey questioner. The layout of respondent's area of business and management level illustrated in the following charts (Fig.1). 67% of responders declared that they applied/developed a new management strategy for their companies during the current Covid-19 crisis (Fig. 2).

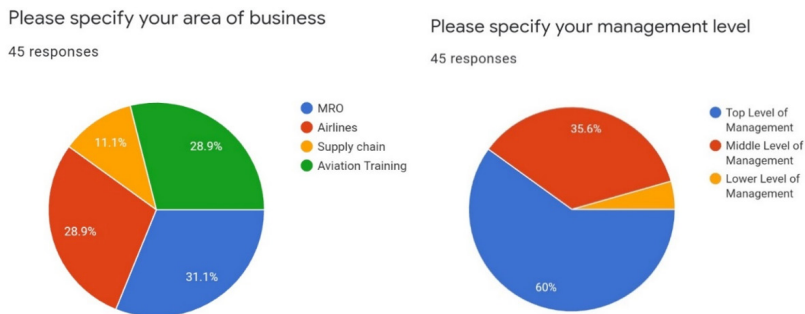


Fig. 1. Responses' area of business and management level
Source: Author's own elaboration

To clarify what are the best strategies that can be applied during the crisis, the survey includes the following question:

Have you applied / developed a new management strategy for your company during the COVID crisis?
45 responses

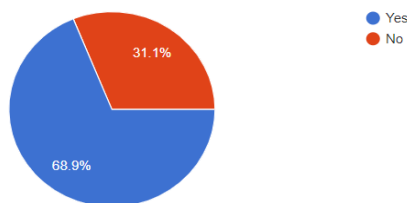


Fig. 2. Companies applied/developed new management model in crisis
Source: Author's own elaboration

From your perspective, what is the most effective management strategy in aviation fields during the crisis? The result presented in the following chart (Fig. 3). This figure clearly demonstrates that the best strategies that can be applied during the crisis period are the alliances and the expansion, thus we will describe these two strategies in more details.

From your perspective, what is the most effective management strategy in aviation fields during the crisis?

45 responses

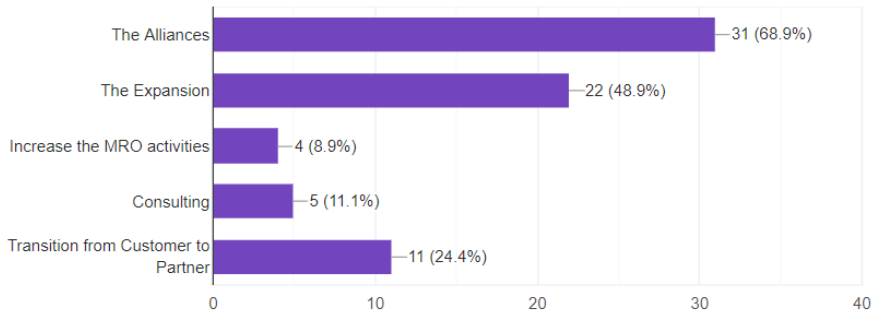


Fig. 3. Management Strategies distribution during crisis
Source: Author's own elaboration

The Alliance

Liberalization of the airline market allowed carriers to reach wider areas of the world, especially airlines with larger fleet and financial resources are more likely to benefit from this trend in the industry. This makes the Alliance strategy an important source of synergy for developing countries' airlines to increase their competitiveness against large carriers [5]. The biggest airline companies in the world are supported by governments, and these companies will not go bankrupt unless the state itself goes bankrupt or the airline itself becomes a heavy burden on the country's economy, so the company's bankruptcy will be a common or governmental decision, as it happened with a Bombardier and the Québec government. Bombardier transferred its remaining interest in Airbus Canada Limited Partnership (Airbus Canada) to Airbus SE and the Government of Québec. Airbus now holds 75% of Airbus Canada with the Government of Québec increasing its holding to 25% for no cash consideration (Airbus Canada). From the authors point of view every manager have to study in deep the crisis of Bombardier and what are the main factors that made a leading company in the field of aviation, which was founded in 1970 to declare its bankruptcy after a great march of successes and innovations. With the source of information which published by the company itself, it can be concluded that one of these factors is the bad management and wrong decision.

Alain Bellemare, President and CEO of Bombardier, Inc. said: “We are incredibly proud of the many achievements and tremendous impact Bombardier had on the commercial aviation industry. We are equally proud of the responsible way in which we have exited commercial aerospace, preserving jobs, and reinforcing the aerospace cluster in Québec and Canada. We are confident that the A220 program will enjoy a long and successful run under Airbus’ and the Government of Québec’s stewardship”. This is another chapter in the aviation business we have to talk about and get the lesson from that experience as a profound example that the aviation business has its own laws, in this dog-eat-dog environment one mistake is the inevitable failure and it could be the last. The word of ‘unexpected situation’ should not exist in good management dictionary.

The Alliance is sharing economic risks between two or more companies, which can help mitigate of exposure to downturns and unexpected shifts in customer demand. This is especially true when entering into an alliance with a company that has established itself in a market that considered as desirable [8]. It is absolutely difficult to effectively share economic risk, if the company management does not choose to make an alliance with a company that has similar objectives and an organizational structure that meshes well with its own. In such kind of pandemic, it is quite difficult to survive alone, especially when talking about the field of aircraft maintenance as the aircraft maintenance companies need large investments and strong funds in order to maintain their stability. There is always an internal pressure that revolves around three things: identifying and monitoring maintenance problems, minimizing aircraft downtime and minimize the maintenance costs.

Every planning mistake, that contributes to delaying the delivery of the aircraft, is costly, the more the plane is on the ground, the more are the expenses. Let’s take a look at “Magnetic MRO” as an example for MRO companies. It is easy to note that in 2018 the company achieved 88€ millions of turnovers while the net income was only 5.1€ million. These numbers give a clear and direct indicator to know the amount of the company’s expenses [1]. On the other side, looking at the company’s strategies and collaborations with other companies and the companies behind it, you understand that the company can struggle against this pandemic. So, when considering the advantages and disadvantages of strategic Alliances, remember that risk reduction is one of the primary goals that can be assigned as “sharing economic risks” between two or more companies, this can help mitigate exposure to downturns and unexpected shifts in customer demand. It is important to remember, that we can’t effectively share economic risk, if we don’t choose to make an alliance with a company that has similar objectives and an organizational structure that meshes well with its own. It is always useful to read the case studies because it is knowledge through experience. For this field, it is good to read about the alliance strategies, about Renault and Nissan, Air France and KLM and try to investigate the factors that affect alliance success.

The aviation manager has to understand all the tools and the types of the strategic alliance. He should have the explanation of these kinds of questions: what is the meaning of strategic alliance, what types of strategic alliances exist, how can they be benefitable or a dead weight to a company, and why are they now mandatory for success on modern trading platforms? It is at a high level of importance in this regard to be familiar with the case study: bad strategy and bad fortune – Swissair and Qantas.

One of the books that are very important in this area and it is recommended to read is “Strategic Management” [15] which discusses different theories and approaches in the context of real-world experience. Readers are encouraged to conceptualize and generalize business problems and to confront philosophical issues without losing sight of practical aims.

The Expansion

The expansion is one of the best strategies that an MRO organization must achieve, not only on the continent where they are located at but to open other filials and hangars on other continents. The crisis or pandemic could destroy a country or a continent, but for example, the current facts with Covid-19 showing us that the crises never affected the entire world at least in the same level, so the expansion of the company makes it freer to manage the crisis and make the choice to move to another place if it is needed. Good examples for this strategy implementation are the expansion of FL Technics (<https://fltechnics.com/>) to Far East with base and line maintenance, and Magnetic MRO (<https://magneticmro.com/>) to China and UK. One of cons of the top management of the company is that they can employ an aviation leader or manager who for example does not have any idea of whether there is a country called Benin or not or does not know that the population of Nigeria is more than Russia's, Ukraine's, Belorussia's, and Baltic states combined. If the proposed management does not have sufficient knowledge of the world's history, geography and politics, there is a very small chance of success when cooperating with airline companies in unexplored markets and open a line maintenance as an example in the kingdom of Swaziland. The definition of the expansion strategy is adopted by an organization when it attempts to achieve a high growth as compared to its past achievements. The reasons for the expansion could be survival, higher profits, increased prestige, and economies of scale. In fact, there is a lack of information and research, the world of the aviation industry is changing on different levels and scales. Here it is good to note that successful expansion of a company could be due to the failure of others, and it creates the opportunity to take control over things and the issue of bombardier and Airbus is not far from being the best example of

the expansion over the failure of the others. On the other side, the military aircraft industry managed to benefit from improving export possibilities, thanks to the policy of political and ideological expansion, while many countries that bear the communist ideology have remained militarily allied with Russia. Not far from that period, many of the companies that extremely expanded after the fall of the Soviet Union and controlled other smaller companies went bankrupt.

This policy is successful in crises and wars, and we can consider that this pandemic is an opportunity for many aircraft companies to absorb other companies under bankruptcy or to replace them. The leader has to be conscious and mindful with what is happening with the aircraft companies around the world. The Treaty of Open Skies is also a good opportunity for the extension of the MRO in new countries and the management team of the company should keep pace with what is happening in many countries in this regard. There are countries that have entered into this agreement and there are countries that are about to enter it such as Morocco, Tunisia, and Qatar. This will enhance the presence of aircraft maintenance companies in those countries and give them the opportunity to expand and establish alliances. Moreover, the top management should be aware and know in depth about this agreement and its regulations.

Thinking about these two strategies and analyzing, the aviation market in Africa during the Covid-19 crisis as a simple example, we can see that today, Africa is safer than other continents in respect of the Covid -19 pandemic situation and the companies there are not affected negatively by this crisis. However, we believe that the future is in Africa and day by day the continent shows that it is safer than any other time before. In many African counties the crime rate is at its lowest as in the Republic of Benin and in the last few years it has become the destination of the investors from all over the world. Today there are 31 airports in Nigeria, and it is in the top largest economies in the world and the largest economy in Africa. The government is giving all the facilities to invest in the country. Nigeria offers Chinese companies a diverse range of lucrative commercial and trade opportunities, regardless of size. As of May 2019, Chinese companies had invested \$20 billion in over 150 firms in Nigeria. This is the opportunity to think about expansion and start to practice this strategy. Certainly, we will find a competition, but we will also get the opportunity of alliance. A successful manager is the one who changes the risks to opportunities, putting the target and showing the commitment and be unique in service. If we are talking about the aircraft maintenance management, we open line maintenance and hire engineers who are qualified with Russian airplanes as they are still in use in Africa and make new alliance with new partners and the success will be yours.

The impact of Teamwork Management on the Management Strategies in the Crises

The organizations can deploy a team in numerous ways and for this reason; there are many ways of classification that help to explain the psychological and organizational differences among different types of teams. One of the underlying concepts that define teamwork is cooperation and trust. One of the main definitions of the teamwork is a group of people who work cooperatively together to achieve an assigned goal. During the Covid-19 environment teamwork groups are under threat and risk. The risk of sickness and death and risk of the deviation in the level of management, mainly, this is what makes this topic at a high level of importance; and management should pay a fair amount of attention to this issue.

The provided survey includes a separate question about the effect of teamwork management in crisis on the management strategy. 91% of responses declare that the team work management positively affects the management strategy (Fig.4).

In this topic the authors noticed that many of the general terms, well-known rules and definitions that contribute to the formation of a successful work team have changed during the crisis time. All these rules can change and become different to what the management and the society know. The struggle between the organization and the pandemic is internal and external, and nobody will be able to overcome it's externally until solving it internally. The team is on the frontline of this internal battle, it is a real battle, and we are at war by all standards. This pandemic has dropped its shadows on humanity, the economy, society, and wellbeing and worsened the worldwide progress.

From your point of view, do you think that the Teamwork Management has a positive effect on the management strategy during the crisis?

45 responses

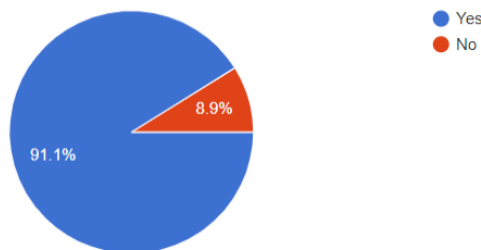


Fig. 4. Effectiveness of teamwork management
Source: Author's own elaboration

This crisis will try to destroy you and if it couldn't do, it will try to break your economy weakens you. The leadership has to understand that we could lose great people in the company, we can lose control when we start to lose our jobs, we need to protect our teams and keep them far from this terrifying situation. In this situation of crisis, the team members need to communicate more than any other time, work cooperatively together, and provide emotional support for each other with high level of group cohesion and good social relations. This is definitely the responsibility of the leader to provide a direction for the group and to facilitate its internal processes. There is no set of rules that a good leader can mechanically follow. There are many factors and behaviors that affect the team and its performance, the trust, communication, cooperation, common goals, and competition. All these factors are the essence of teamwork, and if there is any gap in one of these factors in the crisis period, it will grow up and will affect negatively and influence on the team motivation and creativity.

The pandemic time will change the behaviors and principles of the team. The individual goals and targets will be prioritized over the team goals. Everyone starts to stress and think about their wellbeing, everyone start to think how they can stay safe, healthy, and economically stable. Many workers are going to lose their jobs and the main atmosphere dominating on the work, if there is one person who is going to lose his work let it be anyone except for me, the competition will create distrust that reduces the amount of communication within the team. This conflict between doing what is best for the individual to succeed and doing what is best for the team.

The communication requires trust and helps to improve the coordination on the tasks and satisfaction with working together and overall team performance [13]. In the pandemic time the team should be highly cohesive with high cooperation and make the team socially and emotionally connected to each other. This conformity can make it difficult to influence the team and change its deviation especially when the team has a norm of not doing much work. The competition, cooperation and communication are good impact on the teamwork, but they have to be used in the right manner and the right way, and the leader is the one who has to ensure how, with whom and which time to facilitate its internal processes. When we talk about the teamwork as a science of management, it is very important to know the key people of this science and what kind of research they did. It is very important for a manager to know the history of this science and what are the stages he went through and how did the scientific research progress in this field. This science has many sources and the research from the sociology, anthropology, political science, speech, communication, business and engineering and the Aviation leader must get the skills and wisdom from each of them combined [14]. This determines that much of the success of these groups was due to the leader's ability to recruit highly competent team members. Moreover, management teams with members of different backgrounds are more innovative than homogeneous team [6]. It is very important

for the leadership to read in depth the history of the team management especially about crisis time after the World War II, because in that period the researchers developed additional strategies related to the standard approaches to work. In that period the sociotechnical system theory provides a way to analyze what people do at work then decides what is the best way of organizing them, this system was applied in the Volvo car facility in Sweden.

In the pandemic time the hidden agenda can be a source of problems when the leading team decides to make changes in order to resist the crisis.

The pandemic crisis makes the problems bigger than they are in normal times and harder to control and it will break down the trust within the team and lead to gossip issues. In the crisis only the open and trustworthy communication helps the team to manage the problems and conflicts better. Usually, if there is any problem in the quiet agenda of the company it should be solved hidden in the safe manner. As stated above (See Fig. 2) 67% of responses declare that they applied or developed new management strategy during the crisis to overcome and pass over safely as well as deal with problems which could arise due to hidden agenda.

Conclusion

This research was assigned to study the management strategies of the organizations making a business in aviation fields during the crisis period. The impact of the crisis on the aviation industry was described. The authors performed a brief review of the epidemic and pandemics recurrences, and then the main management strategies that are usually used and implemented in aviation management field were described. The authors conducted a survey to answer the main 2 questions:

- Which of the management strategy is more adaptive for aviation organizations in crises?
- What is the impact of the team management on the management strategy in crises?

The survey showed that 69% of the organizations working in aviation fields applied or developed new management strategy during the crisis; moreover, the poll results showed that the best management strategies during crises were the alliance and expansion. Detailed explanation of these strategies was given. The poll also illustrated the importance and positive effect of teamwork management on the management strategies in crises.

Based on all the above, the authors can conclude the following:

- Inadequate management of the aviation companies in crises is the major cause of the company's collapse and can lead to bankruptcy.
- Aviation industry managers should be like the mixed martial arts fighter, s/he should possess all the skills and knowledge to defend himself and his

company against the economical knockout. He has to be trained for any situation and circumstances.

- It is at high level of importance that the top management knows the basic principles to overcome the crises. The main strategy which could help the aircraft company for surviving in the crises is the alliance and the expansion.
- Alliance of the airline allow carriers to reach wider geography, especially airlines with massive and sustainable financial resources as far as such companies are more likely to benefit from this trend in the industry while for aircraft Maintenance and Repair Organizations (MRO), the geographic expansion is one of the best strategies that a MRO organization must achieve, not only in the region where they are located but to open other filials and hangars on other continents.
- Taking into consideration the effect of the crisis especially pandemic crisis on the teamwork, it is very important for the top management to study teamwork management as a field of science and what kind of research performed in this respect.

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