Long-Term Planning of Organizations in Industries with High Uncertainty Environments

Erik Linden

Contents

Summary
1. During an environmental shock:
   - Do not exaggerate the current, short-term developments, because of unproductive uncertainty.
   - Introduce a three-step process to embrace uncertainty in the organization by sensing changes, seizing opportunities and transforming the organization accordingly.
2. To prepare for future environmental shocks:
   - Develop a common strategy language, introduce uncertainty as a standard factor for long-term planning, manage uncertainty proactively and make long-term plans accordingly.
   - Foster a continuous dialogue with formal and informal strategy meetings on various levels of the organization and with various stakeholders.
   - Be aware of the strategy tools being used; they might be vital for the success of long-term planning and other organizational outcomes.
   - Make the board a co-creating team. If the board does not have the necessary capabilities and experience, compose it differently and heterogeneously.

Organizations can experience environmental shocks that cause significant changes to the environment that a company operates in. An example of this is the COVID-19 pandemic which is possibly changing the aviation system for decades to come. Therefore, it is important for firms within the industry to react effectively to such environmental shocks. During such a shock, it is important to not exaggerate current, short-term developments due to the underlying uncertainty that the shock is surfacing. To embrace this uncertainty, it is important to sense changes, seize opportunities and transform the organization accordingly. Also, to prepare for future shocks, a common strategy language should be developed while part of it shall be uncertainty as one of the main factors. This allows uncertainty to be managed proactively and long-term plans to be made accordingly. Finally, it is necessary to foster a continuous dialogue with formal and informal strategy meetings, use the right strategy tools as well as ensure a heterogenous capability and creativity level in the board.

15.1 Introduction

In 2021, the outlook for the aviation system is different than it was months and years before. The pandemic COVID-19 has been spreading across the globe, causing significant change to the environment and the functioning of the aviation system. The aviation system is undergoing an unprecedented, historical change, which might influence its players and central network actors for years and maybe decades. How is it possible that so many decision-makers seemed to be surprised by such a development? What should have been their reaction? can someone strategically prepare for such environmental shocks and high levels of environmental uncertainty?

This book chapter gives guidance to strategy actors of aviation organizations being struck by environmental shocks. The frameworks and concepts of this chapter help aviation managers to think strategically during times of shocks and prepare themselves for future ones by developing more resilient aviation organizations. Practical recommendations are to not exaggerate the short-term developments and get paralyzed by uncertainty, introducing a three-step process by developing dynamic capabilities of sensing changes, seizing opportunities and transforming the organization accordingly, defining roles and involvement of actors as well as to, in the long-term, develop a common strategy language, foster a continuous dialogue on environmental change and make the board a co-creating team to use its capabilities and experience.

15.2   What Is the Real Issue of Long-term Planning in Aviation?

The aviation system has a history with shocks that impacted the system heavily in the last five decades: Oil crises, Wars, SARS, 9/11, financial crises and Eyjafjallajökull or Indonesian volcano ash clouds. Nevertheless, environmental shocks disrupt the airline system (meaning airlines at front and whole supply chains immediately after) and impact it for the years to come. During the first wave of the COVID19 panedmic, airlines were going bankrupt internationally, and governments supported airlines and many other aviation organizations with credits, loans or other measures to ensure liquidity shortages. Others tried to secure their future without any governmental support, blaming others of misconduct by approaching governments or investors to offer financial shields. One could observe that nearly every aviation organization worldwide was challenged to secure the long-term survival of their organization. How can aviation actors make plans for environmental shocks, such as COVID-19, to reduce the exposure to the risks that such shocks pose as well as to strategically innovate, adapt and emerge successfully from shocks?

Each of the above-mentioned shocks had specific characteristics, yet all have something in common: an increase in the level of uncertainty posed by the external environment of organizations. A continuous transformation within the aviation system through changes in the political, economic, ecological, social, technological or legislator spheres, or transformations on the market and customer side, combined with these external shocks, created a vacuum for strategic planning for many organizations in recent years, thus lifting them into a stadium of unproductive uncertainty and paralysis for long-term thinking and acting. Therefore, it is important to learn how to prepare for and strategically innovate, adapt and emerge successfully from shocks, while COVID-19 offers pressure and urgency to do so (Gudmundsson & Merkert, 2020).

This part of the book chapter aims at comprehensively summarizing main strategic management theories and frameworks on how to shape organizations strategically in times of environmental change, rising levels of uncertainty and external shocks. These frameworks and theories ought to be used to embrace uncertainty as standard factor for aviation organizations (since it will be anyways) and introducing robust strategic structures and processes to handle shocks proactively, by creat-

ing a culture of resilience and openness to transformation. This summary helps aviation decision-makers to create organizations' preparedness for shocks as well as offers opportunities for recovery strategies following major shocks. It further bases its assumptions on the systemic view of the aviation industry introduced in the first chapters of this book. It highlights possible avenues on how aviation managers could make plans for shocks by reducing the exposure to the risks that such shocks pose as well as strategically innovate, adapt and emerge successfully from environmental shocks and high levels of uncertainty.

15.3 Theoretical Background to Long-Term Planning in Times of Uncertainty

15.3.1 Environmental Shocks Are no Black Swans, but Increases in the Level of Uncertainty

Every year, the World Economic Forum (WEF) asks managers before the annual meeting in Davos, what they consider to be the most significant risks for the business world (WEF, 2020). For the year 2020, environmental issues such as climate change, cyber-attacks and data breaches were named as the most probable global risks (p. 3). More than a year later, the world looks different: the disease COVID-19 has been spreading across the globe, causing significant change to society and also to aviation organizations internationally. Obviously, managers across the globe, and specifically aviation managers were surprised by COVID-19 and its massive impact. The pandemic is impacting not only central network actors of the system, such as airlines, airports or service providers, but literally everyone involved in the aviation system. How could something like this happen and how could managers not be prepared for a global pandemic?

Lipsitch et al. (2009) found that the problem of infectious diseases are a "combination of urgency, uncertainty and the costs of interventions [which] makes the effort to control infectious diseases especially difficult". No doubt, globally spread infectious diseases are relatively rare events. The high damage potential is usually assigned a very low probability, which also means that pandemics are assigned a subordinate role compared to other risks. This is why some organizations might not have dedicated action and strategic plans for globally spread infectious diseases. Also, organizations were simply not able to quantify the impact of such an event. Managers of aviation organizations asked themselves: how should I predict, calculate or even make plans for such events? Not being able to answer these questions, pandemics and other environmental shocks with massive impact are often referred to as "black swans"[1] (Deloitte, 2020; Winston, 2020).

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[1] The term originates from the author Nassim Nicholas Taleb (2007). He uses the term to describe extreme impact of rare and unpredictable outlier events and the human tendency to find simplistic explanations for these events, retrospectively – such as financial crises.

Definition

To be called a black swan, the event must first of all be a surprise to the observer. Second, it has to have a significant effect. Third, after the first recorded instance of the event, it must be rationalized in hindsight, as if it could have been expected.

However, COVID-19 did not arise in a vacuum. Pandemic plans have already been made by many countries, politicians and organizations. Even the WEF managers rated "infectious diseases" as their number 10 risk for the next 10 years (WEF, 2020, p. 3). So, COVID-19, and the same goes for other major environmental shocks in the recent decades, should not have been a surprise at all to aviation managers. Especially, because one might even say that aviation managers should be used to such environmental shocks, since they have a history with them. Similarly, Nassim Nicholas Taleb and Mark Spitznagel highlight in their article in the NZZ in March 2020 that COVID-19 is definitely no black swan, but should rather be described as an event which is inevitable, because of the structure of the modern, globalized world. Still, calling environmental shocks a black swan or not does not help any manager per se to make better plans for such events or cope with them. It seems evident that shocks, such as the financial crisis of 2008, ecological shocks or pandemics are events in the external environment of an organization that creates high levels of uncertainty[2]. The answer to the problems may be found in the management of uncertainty and the external environment and a shock is therefore basically two-fold from an actionable perspective: operative reaction to the short-term development and long-term reaction with strategic planning to use the crisis resulting from such shocks as an opportunity.

15.3.2 Strategy-as-Practice as Answer to How to Deal with High Levels of Uncertainty

Several theories and frameworks of strategic management have guided the discussions on how organizations may be strategically organized and structured in a more resilient way, to embrace high levels of uncertainty and prepare organizations for environmental shocks. The theories have only recently been led by researching the actual doings of strategy actors to tackle the real actions and problems of strategic managers.

Definition

"Strategy-as-practice focuses on the micro-level social activities, processes and practices that characterize organizational strategy and strategizing" Golsorkhi et al. (2010).

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2   In 1921, Knight (1921) distinguished uncertainty as being a lack of knowledge which is immeasurable and impossible to calculate from risk which is calculable and fundamental uncertainty as literal ambiguity. This definition of uncertainty is since then referred to as Knightian uncertainty.

This theoretical push in strategy research is ought to make the theories practically more useful. Among others, an aim of this recent theoretical development is to find how strategic managers can embrace higher levels of uncertainty of their environment and make strategic plans accordingly by aligning their internal structures, processes and resources to the environmental change – vital characteristics in times of external shocks. The following paragraphs shall give an overview of this recent theoretical development to give guidance to aviation managers in times of shocks and environmental changes. It may not be possible to predict environmental shocks in the form of occurrence, nor can the impact be quantified. However, what these theories of strategic management highlight is that the **proactive management of uncertainty and a strong long-term perspective during and after such shocks might help react to changes in the external environment faster and more efficiently and create more resilient organizations, possibly helping to manage even black swans in the future**.

15.4 Applications of Long-Term Planning in Times of Environmental Uncertainty

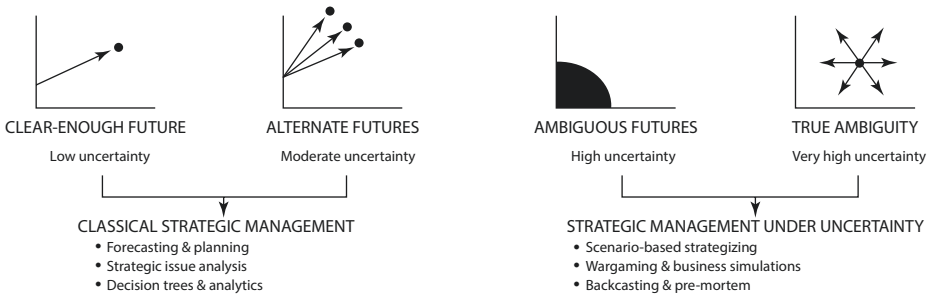### 15.4.1 Long-Term Planning During Environmental Shocks

Scholars of strategic management have found that during shocks, such as COVID-19, managers should not get paralyzed by unproductive uncertainty, and as soon as possible introduce a three-step process to embrace uncertainty in the organization by sensing changes, seizing opportunities and transforming the organization accordingly to make the organization more resilient of environmental changes in the long-run, as well as clearly define roles and involvement of actors during crisis management in this three-step process. This will enable aviation managers to think strategically, even when facing short-term challenges.

> **Tip**
>
> Do not get paralyzed by uncertainty but manage it proactively and develop uncertainty capabilities.

It is important that aviation managers do not get paralyzed by uncertainty, resulting in unproductive uncertainty[3]. Decision-makers of the aviation industry must embrace uncertainty as a critical aspect not only for their short-term actions but also for their long-term planning process – thus developing uncertainty capabilities or dynamic capabilities with a special focus on managing uncertain environments. These capabilities enable managers to open their eyes to options and alternatives of the present

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3   The term was introduced by Nathan Furr in his HBR article "Don't Let Uncertainty Paralyze You" in April 2020.

CLEAR-ENOUGH FUTURE

Low uncertainty

ALTERNATE FUTURES

Moderate uncertainty

AMBIGUOUS FUTURES

High uncertainty

TRUE AMBIGUITY

Very high uncertainty

CLASSICAL STRATEGIC MANAGEMENT
• Forecasting & planning
• Strategic issue analysis
• Decision trees & analytics

STRATEGIC MANAGEMENT UNDER UNCERTAINTY
• Scenario-based strategizing
• Wargaming & business simulations
• Backcasting & pre-mortem

Fig. 15.1 Classical strategic management and strategic management under uncertainty (author's own figure, adapted from prior studies of Star, 2007, Amram & Kulatilaka, 1999, Thorén & Vendel, 2019)

and the future. Human nature leads managers to make strategic decisions based on their lived experience as well as on the history of one's own prior decisions, and routines rather than with an eye on the bigger picture and environmental change. In times of black swans, shocks or incremental, environmental change, it is tempting to firefight, but it is crucial to consider the future and thus long-term assumptions as well. Nathan Furr (2020) found that during times of unproductive uncertainty, managers often get trapped in imagining extreme performances. On the contrary, managers who are skilled in managing uncertainty think in terms of probabilities and alternatives instead. These managers also perceive the crisis as a huge opportunity for the long-term development and sustainable success of their respective organization.

Through embracing uncertainty as a vital factor for long-term planning, aviation managers will understand that strategy under uncertainty is different than classical strategic management (see Fig. 15.1; adapted from prior studies of Thorén & Vendel, 2019). Where classical strategic management is important in times of *clear-enough* or *alternate futures*, strategic management under uncertainty means that managers need to deal with higher *ambiguous futures* and even *true ambiguity*. For true ambiguity, what this specifically means, is that there is no predictable range of outcomes. Managers should deal with this by using scenario-based approaches, wargaming and business simulations as well as backcasting or pre-mortem. The latter strategy tools might especially be useful for aviation actors, since the aviation system has a history with external shocks, thus offering many exemplary cases that might be useful for future assumptions and planning under high levels of uncertainty.

Thus, acknowledging and embracing these high levels of uncertainty during times of shocks for the short- and also the long-run will prevent managers of unproductive uncertainty and support managers in making better decisions about the future of their organizations.

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Tip

Introduce a three-step process to develop dynamic capabilities and thus embrace uncertainty within your organization.

Besides the possible paralysis through high levels of uncertainty, external shocks also influence the strategic processes of organizations in a major way. Strategic management scholars have found that under high levels of uncertainty and in times of shocks, long-term plans need to be adapted accordingly and more regularly. Thus, in times of environmental shocks, climate change or digitalization, agile and more flexible long-term plans are vital for the success of an organization (Eisenhardt et al., 2010). Such dynamic plans create temporary but also sustainable competitive advantage.

To embrace uncertainty, it is essential to demonstrate a determination to sense what is happening in the environment, seize the opportunities arising from the environmental change and transform the organization accordingly (Hodgkinson & Healey, 2011). The terms *sense*, *seize* and *transform* are vital terms for long-term planning of organizations and refer to the "theory of dynamic capabilities", first introduced by Teece et al. (1997). **The goal of dynamic capabilities is to integrate, build and transform internal and external competences to address rapidly changing environments as an organization**. Therefore, aviation managers enable their organization to become a "learning organization", partly breaking with established routines and structures, to adapt to the new environment and develop into a more resilient organization.

> **Definition**
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> A so-called learning organization is a company that facilitates the learning of its members and continuously transforms itself (Pedler et al., 1996).

Following this three-step process of sensing, seizing and transforming, aviation managers will be able to manage the associated uncertainties of the environment more proactively, often and much more regular and agile. The following paragraphs will highlight what this three-step process specifically means for aviation managers in times of environmental shocks and what they need to be aware of:

1. *Sensing*: First of all, in a situation of uncertainty, it is vital to grasp and describe the problem. It is essential to learn quickly and build or rebuild strategic resources, which requires routines of interaction in coordinated search and learning procedures (Pavlou & El Sawy, 2011; Schilke, 2014). What was certain before might be uncertain in the new situation. Therefore, one should 1: define the most critical key performance indicators[4] for the uncertain situation – both for the short- and long-run. What are the most critical factors – of the event and for the organization? In the case of COVID-19, what are the performance indicators impacted by the disease? 2: It is crucial to distinguish between the short- and long-term impact, for example, on the business model, the supply chain or the workforce respectively the resource base of the organization. 3: It is beneficial to work with scenarios, wargames or general business simulations

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4   A performance indicator or key performance indicator (KPI) is a type of performance measurement to evaluate the success of an organization or of a particular activity (such as projects, programmes, products, events and other initiatives) in which it engages.

to embrace uncertainty. 4: It is necessary to work with extreme alternatives and options to develop a large range of possible futures, e.g. for the impact on liquidity, other financial measures and operational metrics. 5: Managers should try to design dashboards to filter the most relevant and urgent information and be up-to-date in real-time. **The better the type and level of uncertainty is understood, the more likely it is that efficient and effective trade-offs can be made between different outcomes for the organization and decisions to be taken more objectively**. Therefore, managers should think in terms of options, and not binary outcomes (Helfat & Peteraf, 2015). For example, governments might change their rules for production facilities fast, regulators might introduce new rules of compliance, airlines might change their fleet strategy and aircraft manufacturers might change their supply chain management according to the new environment. Thus, aviation managers should **be aware that nothing is completely within their control and assumptions are not conclusive**. Changes might happen fast and the true capability of sensing is to continuously challenge the previously established assumptions – literally as a learning organization.

2. *Seizing*: Once the essential parameters have been identified in a broader context, the next step is to analyse causal relationships for the own organization (Teece et al., 1997). What does environmental change mean for my own business and how can I leverage it? For example, aviation managers must be able to link, e.g. behavioural changes of customers, suppliers or partners, as well as new regulations with their existing business model and structures of the organization. They need to be able to engineer design choices and opportunities for their own business. While engineering design choices, aviation managers should also identify possible markets and the timing for these seizing alternatives (Day & Schoemaker, 2016). To enable this, **managers might break down the significant environmental change into smaller, more manageable steps for which a solution may already exist or which are easier to calculate**. These smaller shares then need to be adjusted to the internal context and the structure of the organization. These discrete and manageable sets of options should be made clear and definite to build trust and commitment – internally and externally with the main stakeholders. Seizing means, for example, for network carriers to rethink their loyalty programmes because of behavioural change patterns of customers. For LCCs, seizing opportunities of, e.g. COVID-19 could mean to alter revenue sources and out-of-the-box forward integration because of new work possibilities and more home-office. **Understanding causal relations of the environmental change and internal structures and resources is vital in this second phase of seizing**.

3. *Transforming*: Thirdly, environmental change requires the ability of an organization to actually transform its asset structure and accomplish the necessary internal and external transformation (Teece et al., 1997). **Aviation managers should develop an action plan for adjusting their internal and external strategic assets**. The long-term competitive advantage might be fostered through the integration of external activities and technologies by selecting the boundaries of the organization and therefore looking for possible alliances, networks or partnerships. In the case of COVID-19, this means that new strategic assumptions might nurture a change in the structure, processes, designs and incentives of the organization –

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maybe even long overdue anyways. It is helpful to think of decentralization, local autonomy and strategic alliances or networks to transform the organization (Birkinshaw et al., 2016). Therefore, managers should also think of possible exit strategies of non-productive, inefficient programmes or technologies. In this transformation phase, aviation managers need to be aware of their communication of such a transformation (Helfat & Peteraf, 2015). **Roles and responsibilities should be clearly defined, and transformation needs to be clearly communicated and made transparent to accomplish an effective and efficient alignment**. If not done properly this transformation in times of COVID-19 might backlash, offering opportunities for unions, governments or other societal and political stakeholders that might see the transformation critical, to restrict the transformation of happening at all, causing long-term damage to the success of the organization. Thus, short-term actions based on such long-term assumptions might be vital, but also risky when not done properly.

Mini Case   Airline Management in the COVID-19 Crisis

Andreas Wittmer and Erik Linden

During the COVID-19 crisis, airlines were confronted with fast reduction of passenger demand of up to 99%. Suddenly, airline managers realized that it is not possible anymore to follow hierarchies and institutionalized processes of the organization and that mid- to long-term scenarios did not have any validity anymore to manage the crisis. The crisis was worse than every worst-case scenario they had projected. Hence, task forces were built, where experts of different business units and departments came together on a daily basis to react on daily changes in the environment, deciding on a flight plan, operations, services (e.g. changing from passenger transport to fright transport), etc. These task forces had to work agile, dynamic and fast to react to new insights and regulations on a daily basis. At the same time, they still had to make sure that standard safety processes were handled in compliant ways. So, the management of airlines went from being an alternative future organization with rather hierarchical processes and practices to a true dynamic organization in terms of sensing, seizing and transforming the asset structure and capabilities of the organization (refer to ◘ Fig. 15.2).

With this example, we highlight that task forces managed the crisis very dynamic, agile and efficient and made airlines stronger and more resilient in a VUCA environment. For this reason, the question may be raised if a more dynamic and agile organization is better suited in an environment influenced by VUCA effects in the long term, and not solely during times of shocks or crisis. Hence, one should consider introducing more dynamic capabilities and processes in order to react more flexibly and agilely to changes. This can provide sustainable competitive advantages in the short term, but also in the long term, and make the company more resilient to crises and environmental changes – and these crisis and changes happen regularly in the aviation system.
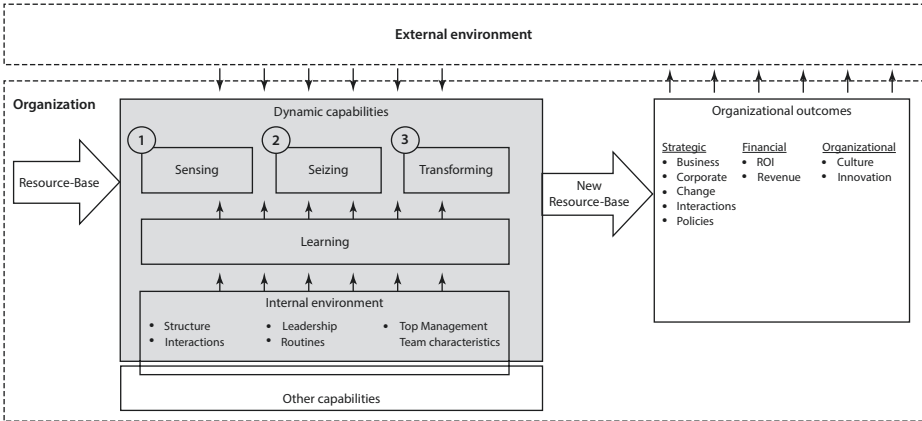
Fig. 15.2 Dynamic capabilities in and their relationships to the external and internal environment as well as organization outcomes (author's own figure)

Figure 15.2 offers a summary of the above-mentioned three-step process, illustrating how these dynamic capabilities of sensing, seizing and transforming are strongly interlinked with the external and internal environment of the organization. Further, what is illustrated in Fig. 15.2 is that these dynamic capabilities impact the strategic, organizational and financial outcome of the organization, highlighting that these capabilities are vital for the long-term success of organizations challenged by environmental change.

Mini Case: The Transformation of Skyguide as ANSP of Switzerland

Due to political, regulatory, technological and social pressure, the Air Traffic market is disrupted. Therefore, ANSPs need to transform their business and focus on operational and technological innovations to meet these new challenges of a cooperative and efficient airspace structure. For example, Europe is moving towards a new kind of Air Traffic Management (ATM) network enabled by new technologies, cooperative traffic management principles, innovative processes, a new approach to human resources management and by the emergence of new ANS business models. These changes, e.g. include totally digitized stripless working methods and systems evolving into Virtual Centres, a "common controller cockpit", enhanced satellite-based flight procedures or transforming the classic Air Traffic Management (ATM) business by introducing and integrating Unmanned Air Traffic Management (UTM), also called U-Space.

Therefore, an Air Navigation Service Provider (ANSP) must adapt to what is happening in the environment. Skyguide did this and, right now, is transforming its business to meet changing customer needs in a disrupted market of Air Navigation Services (ANS), which is on the cusp of a paradigm shift. They introduced a long-overdue technology-based strategy to transform the organization and adapt it to the new environment. How did they do it?

First, they invested a lot of time and effort into sensing the new challenges that arise in the future. This required them to build routines of interaction in coordinated

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search and learning procedures through internal and external workshops and several talks and sub-projects. They introduced new KPIs, worked with several scenarios of a possible future and discussed these with various stake- and shareholders and on different levels of the organization. On the basis of that, they created a shared vision for why they should exist in 2035.

Second, they analyzed causal relationships of this change for skyguide and were able to link behavioural changes of customers, suppliers and partners, as well as new regulations with their existing business model and structures of the organization. They were able to engineer design choices and opportunities for their own business. While engineering design choices, they identified possible markets and the timing for these seizing alternatives, thus introducing the vision of skyguide for 2035. They further pushed their strategy in terms of U-Space with a national and international partner network, thus using COVID-19 as enabler for a transformation that is long overdue. These discrete and manageable sets of options were made clear and definite to build trust and commitment – internally and externally with the main share- and stakeholders, such as the Federal Office of Civil Aviation (FOCA), one of their main stakeholders of the organization.

Environmental change required skyguide to be able to actually transform their asset structure and accomplish the necessary internal and external transformation through. Thus, in a third step of their transformation process, they looked for possible partners, networks and alliances, e.g. technology providers or research institutions in the area of u-space, to create, e.g. joint ventures or spinoffs for digital airspace solutions: "we would like to continue driving change in partnership with like-minded partners. Thus, we are open to explore partnerships and create value together; and we want to learn from, challenge and share experiences with our partners. Together is better" (skyguide, 2020). Thereby, they transformed their "business model, driven by (…their…) future operational concept and enabled by a transformed approach to human resources", the CEO of skyguide, Alex Bristol, said in 2020 (skyguide, 2020).

However, even at skyguide, a more focused and strategic approach to stakeholder and crisis management could have transformed the organization more radically while this may have been nurtured in dedicating more resources to addressing the challenges they are facing from the external environment (possibly with the three step process of sensing, seizing and transforming as described before). This would have led to the organization being even more shock-resilient in the future.

15.4.2 Long-Term Planning to Prepare for Future External Shocks and High Levels of Uncertainty

Besides introducing a three-step process of strategic transformation, continuous long-term planning is vital to adapt, innovate and emerge on a sustainable foundation. To do this properly, scholars of strategic management found several aspects being decisive: fostering a common strategic language among strategic actors, introducing uncertainty as a standard factor for long-term planning (since it will be anyways), enabling an internal and external dialogue on environmental change and making the board a co-creator to use its capabilities and experience best.

> **Tip**
>
> Foster a common strategic language.

To foster strategy under high levels of uncertainty, aviation managers first need to speak the same language. The author of this book chapter does not mean the literal language that an organization speaks, which might be vital to address as well, but rather taking the actual *social practice* of strategizing seriously (Vaara & Whittington, 2012). **Strategic language is difficult and can lead to misunderstanding, even impacting the strategic and financial performance of organizations** (Seidl, 2006). Seidl (2006, p. 1) found that "every single strategy discourse can merely construct its own discourse-specific concepts". This might lead to *productive misunderstandings* in strategy-making (Mantere, 2010; Seidl, 2006). On the contrary, good strategy discourse might lead to better sense-making in top management teams (Balogun et al., 2014) and strategic sense-making and sense-giving by middle-managers. Managers should not underestimate the importance of negotiations and written text documents of strategy. Narratives of strategizing ought to be seen "as a way of giving meaning to the practice that emerges from sensemaking activities, of constituting an overall sense of direction or purpose, of refocusing organizational identity and of enabling and constraining the ongoing activities of actors" (Fenton & Langley, 2011). Thus, texts and strategy documents play a vital role in strategizing. Pälli et al. (2009) show in a case study of Lahti city planners that "specific communicative purposes and lexico-grammatical features characterize the genre of strategy and how the actual negotiations over strategy text involve particular kinds of intersubjectivity and intertextuality" (p. 2). **For aviation managers, this means that they need to introduce key terms and definitions for their strategizing and approve these terms with their strategic actors within and outside of the organization on a regular basis**. This might especially be important for, e.g. aircraft manufacturers and their supply chain managers as well as their tiers in the supply chain. Speaking the same strategic language in such complex and uncertain environments means more efficiency and more effective supply chain management – vital in times of shocks and important to secure supply chain operations in times of historic circumstances that the aviation system is recently facing.

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> **Tip**
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> Introduce uncertainty as a standard factor for long-term planning.

Although embracing the uncertainty of the external environment being a vital factor for long-term planning, uncertainty does not arise only via external environments. Strategizing itself is concerned with the future of an organization, and this future is per se uncertain. Every decision itself creates new uncertainties. Thus, uncertainty also develops internally through decision-makers making decisions on

future directions and plans of organizations. The challenge in this situation is not to crave for more information to reduce ambiguity, but rather feeling comfortable with uncertainty. As Johnson (2015) put it in an HBR article, "get comfortable with the unknown". Baran and Scott (2010) have studied how people in high-risk professions, such as firefighting, deal with uncertainty. What they found is the so-called theory of *organizing ambiguity*. Firefighters conceptualize their circumstances by "mak[ing] effective sense of the hazards within dangerous contexts such that they avoid catastrophic mistakes" (p. 43). Firefighters take action knowing that the environment might change and alterations from original plans may be needed. **Strategic aviation managers need to cope with uncertainty such as firefighters do. They need to make it their daily routine and habit to work with uncertainty – not solely for the sake of reacting to the environment, but also for their decision-making praxis and practices**. Aviation managers should therefore introduce uncertainty as a standard factor, since it will always be part of long-term planning anyways.

Tip
Enable an internal and external dialogue on environmental change.

What might help to embrace uncertainty as a standard factor is to enable an internal and external dialogue on environmental changes to challenge assumptions on a regular basis. A critical and open discussion on internal and external environmental changes should be fostered between the main stakeholders of the organization. This dialogue also fosters cognitive and reflexive functions, which are vital for strategy-making. **This means introducing more formal as well as informal strategy interactions for exchanging ideas and thoughts on recent changes in the environment and developing strategic initiatives or programmes**. One might assign dedicated teams to scan the environment, using "outside the box thinking" in so-called *analysis teams,* or engage with a large range of stakeholders in brainstorming or platform sessions. In the best case, aviation managers should foster such a dialogue on different levels as well as with the main stakeholders of the organization[5] (see ◘ Fig. 15.3 below).

Integrating these platforms for dialogue into a centralized, in the best case already established, "Governance, Risk and Compliance Management" tool (see prior book chapter for this issue) might be helpful to institutionalize the findings and build organizational routines, while complying with regulation, addressing the risks properly and assigning tasks and responsibilities efficiently.

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5   According to the stakeholder management approach for strategic management, among others by Freeman and McVea (2005) and Buysse and Verbeke (2003). This is especially important in industries, which are highly dependent on main actors and dynamic in nature, such as the aviation system.
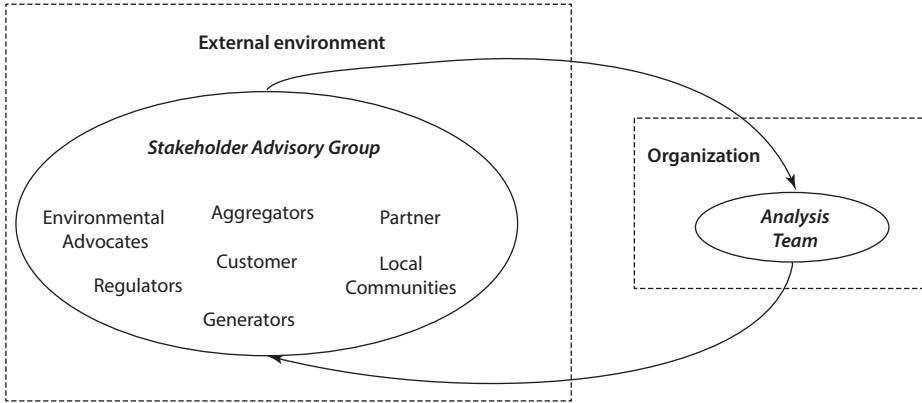
Fig. 15.3 Platform for internal and external dialogue on environmental change (author's own figure)

Mini Case

A good example for such an internal and external dialogue is the already mentioned ANSP of Switzerland, skyguide. They introduced a platform together with main stakeholders called SUSI (Swiss U-Space Implementation), which is hosted by the Federal Office for Civil Aviation (FOCA) in Switzerland. This dialogue-platform offers skyguide strategic reflexivity and dialogue on unmanned air traffic as well as an outside view into recent and future developments of this field, which might be vital for their long-term success in the ANSP market.

Carton (2017) found in studies on NASA-teams in a paper published in 2017 that this sense of purpose might boost employees' coordination and collective enthusiasm, thus not only offering alignment to environmental change, but also fostering internal processes and employee satisfaction through involvement and sense-making.

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Tip

Be aware of the strategy tools being used.

Such platforms may establish fast and interactive iterations of thinking and acting in the best case resulting in commitment, motivation and strategic change in- and outside of the organization more rapidly. This encouragement might help people to imagine the future, which counters the passivity and feeling of helplessness in times of shocks. However, and besides the great opportunities such platforms pose, **aviation managers should be aware of the tools being used during strategizing**. Tools are boundary objects for strategy-making and will, most probably, affect the

success of the long-term planning process as well as firm performance (Spee & Jarzabkowski, 2009). Tools, such as scenarios or wargaming, might help to reduce uncertainty and align the organization to environmental change, but only if addressed correctly and for the right purpose. Jarzabkowski and Kaplan (2015) highlight that "strategy is not something an organization *has* but rather something that people in organizations *do* (Whittington, 2007). Tools are most usefully seen as parts of the process rather than purely as sources of the answer".

> **Tip**
>
> Make the board a co-creator in times of uncertainty.

Many organizations have problems and struggle with who is responsible for strategy-making in times of uncertain environments. Scholars found that the conversation between management and the board is especially relevant here, since these are the most crucial teams for strategizing. One should reduce the natural information asymmetry between these two most vital strategic teams. Scholars found that strategy meetings and workshops are vital for this relationship, among other effects, constructing shared views around strategic issues, creating consensus and introducing strategic change. Scholars found that the board might be the key strategizing actor, especially in times of environmental uncertainty, with Leblanc and Gillies (2005, p. 6) even argue that "nothing is more important to the wellbeing of [an organization] than its board". For example, in Switzerland, the board is the key strategizing actors even by law[6]. Among other duties, the board is responsible for the development of strategic objectives, the determination of the means necessary to achieve the goals, issuing the required instructions to the executing bodies and controlling the implementing bodies about the achievement of objectives (Müller et al., 2014). To do this, the board needs to be in a cooperative strategic dialogue with management and steer through strategic guidelines (Carpenter et al., 2004).

> **Attention**
>
> Despite strategy being a non-delegable duty, the strategic role of the board is not self-determined in organizations today.

Hence, and especially in times of environmental uncertainty, it is essential to define the role, function, responsibilities and involvement of the board in strategizing. Scholars highlight that the board needs to take a stronger strategic role (Cossin & Metayer, 2014; Hendry et al., 2010) and get involved more often especially in

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6   Long-term planning is one of the major tasks the board in accordance with OR 716a of the Swiss Code of Obligations (OR). See more details to the role and duties of Swiss boards in Müller et al. (2014). This is comparable to other board-systems such as, e.g. the management board in the USA.
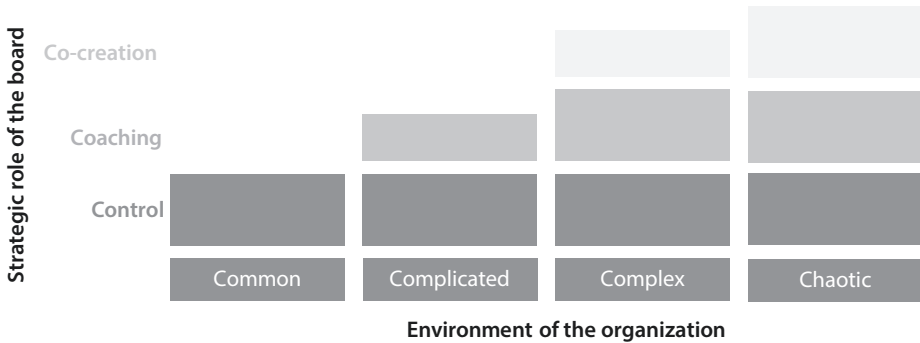
Fig. 15.4 The strategic role of the board is depending on the environment of the organization (author's own figure)

dynamic industries and in times of high levels of uncertainty (Garg & Eisenhardt, 2017; Judge & Talaulicar, 2017; Oehmichen et al., 2017). This might diverge from solely supervision, to coaching or even a co-creating role[7], depending on the context of the organization (see ▣ Fig. 15.4 below). **In times of highly uncertain environments, it might be advisable for boards to be co-creators, not only taking a controlling-, supervising- or coaching-role** (see ▣ Fig. 15.4).[8] Thus, in this so-to-say chaotic environments, the board needs to spend an equal amount of time on co-creating as on supervision. This would mean making most of the capabilities and, in the best case, the experience of its members. If the board does not lead strategically or does not have the necessary capabilities and experiences for such shocks, compose the team differently, since this is key for the success of the organizations.

When discussing strategic involvement and actions, a special focus needs to be placed on the interactions of the Chairperson and the CEO, who are the most influential and important actors for the long-term success of organizations (Ma et al., 2019; Nadler, 2004). Same as for dialogue with stakeholders, this includes introducing more formal as well as informal strategy interactions for exchanging ideas and thoughts on recent changes in the environment and developing strategic initiatives or programmes. One strategy workshop with the board per year might not be enough anymore to develop effective and sustainable strategies. **Aviation managers need to step-up their strategic game in their top management team and use platforms for strategizing in a regular fashion to make the enable the prior-described three-step process to be successful**. Only then, they will be able to develop literal *dynamic capabilities* and adapt, innovate and emerge from environmental shocks.

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7   See Cossin and Metayer (2014) in their article on "How Strategic Is Your Board?" in the MIT Sloan Management Review. See also ▣ Fig. 15.4, which has been designed according to their article.

8   Roles for communication are delegable. But it is important to define who communicates, how and to whom.

15.5 **Discussion**

The theories and frameworks highlighted in ▶ Chap. 3 offer guidance to aviation managers in times of high levels of uncertainty, during times of environmental shocks, as well as offer solutions on how to prepare for shocks in the future. Despite these approaches being vital for aligning the organization to the environment and sustainable organizational success, one should always reflect if strategic transformation is really needed and possible in the long-run. Besides not getting paralyzed, it is also important to be prudent and patient in times of environmental change or shocks, too. One should not overreact to environmental change too soon and align strategic assets, processes or even whole strategies based on short-term assumptions. These short-term actions might counteract established and successful long-term plans. Aviation managers should not be actionists in times of environmental change.

Also, new work developments seem to influence the actual strategy practices and praxis described in ▶ Chap. 3. This development of new work will open up opportunities. Full virtual workforces might be established on a level we have never seen before. In times of environmental shocks, it is partly not possible to meet in person. Thus, aviation managers need to be aware of the pitfalls and risks facing this new management characteristic by, e.g. leading virtual teams. Use virtual meetings properly and strategically and "break up your big virtual meetings" by embracing silence in brainstorming sessions and using breakout rooms to create a sense of accountability.

Raffoni (2020) highlights in her HBR article that leaders should ask themselves five main questions when leading virtually:
1. Am I being strategic enough?
2. Have I revamped communication plans for my direct team and the organization at large?
3. How might I reset roles and responsibilities to help people succeed?
4. Am I keeping my eye on (and communicating about) the big picture?
5. What more can I do to strengthen our company culture?

Managers should keep these five questions in mind, especially when leading virtually, but also for the long-run. The structure, strategy processes and interactions as well as new dynamic capabilities aviation managers are building right now will continue to serve them after environmental shocks and potentially for next shocks that are hitting the system in the future. Every shock, and every effective response to it, creates a new normal complete with new routines, new assumptions and possibly new technologies (Kanter, 2020). And thanks to the strategic theories and frameworks mentioned in ▶ Chap. 3 of this book chapter, aviation managers will be more ready for such shocks, with new dynamic capabilities to lead their organization more effectively than before – whether from home or the office.
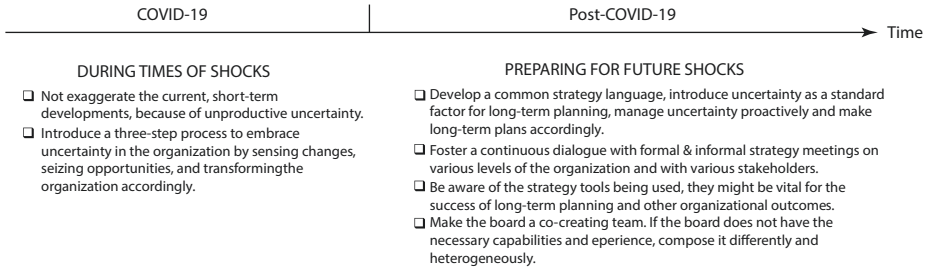
Further, in the aviation system, a shock such as COVID-19 exposes institutional gaps, divides partners or networks, and many problems and issues arise. This might be a huge opportunity through a strong quest for new powers, standards and characteristics in the aviation system. What one can see already is that customers might change their behaviour and needs, partners might want to rethink their agreements and manufacturers might change their requirements for suppliers. Also, in the wider system of the aviation system, legislators might want to add or tighten regulations, new technologies might emerge faster and sustainable solutions might be more important than ever before – not only to customers, but also to institutional actors. Government officials might want to fix long-standing systemic problems by nurturing change and incentivizing differently. Strategizing of aviation managers needs to align to this so-called new normal of the aviation system. The frameworks and theories of this book chapter might help aviation managers to do so and think in the long-run, even if this might be counter to what managers are used to and lead to tough decisions in the short-run.

15.6   Summary: How to Make Long-Term Plans in Times of and Prepare for Environmental Shocks and High Levels of Uncertainty?

COVID-19 or other environmental shocks undeniably disrupted whole industries, increasing uncertainty for long-term planning. Thus, management of uncertainty is vital for the long-term success of organizations. These shocks are a strong call for long-term thinking. They mean high levels of uncertainty for aviation managers. This uncertainty might paralyze humans and lets them think in assumptions that might be too ambiguous for actual management. Anxiety and fear of the unknown kicks in, whereas most cannot imagine an upside during such shocks. Managers become paralyzed, caught in a state of unproductive uncertainty. Therefore, strategizing might be more important than ever before within the aviation system, to secure short-term operations, but to prepare the organization for future shocks already today. We therefore asked the following main question: *how to make plans for environmental shocks such as COVID-19 to reduce the exposure to the risks that such shocks pose as well as to strategically innovate, adapt and emerge successfully from shocks*?

This book chapter is a strong call for strategic action in times of environmental uncertainty and also in times of uncertainty in general. The author of this book chapter bases his findings on main theories and frameworks of strategic management literature and praxis. Strong recommendations for aviation managers are the following: aviation managers need to embrace uncertainty proactively and make long-term plans accordingly. They should introduce a three-step process to sense, seize and transform the organization according to the environmental change .

◘ Figure 15.5 summarizes these two crucial aspects of strategic management during times of shocks and strategic management to prepare for future shocks.

COVID-19	Post-COVID-19
	Time →

DURING TIMES OF SHOCKS	PREPARING FOR FUTURE SHOCKS
❑ Not exaggerate the current, short-term developments, because of unproductive uncertainty. ❑ Introduce a three-step process to embrace uncertainty in the organization by sensing changes, seizing opportunities, and transformingthe organization accordingly.	❑ Develop a common strategy language, introduce uncertainty as a standard factor for long-term planning, manage uncertainty proactively and make long-term plans accordingly. ❑ Foster a continuous dialogue with formal & informal strategy meetings on various levels of the organization and with various stakeholders. ❑ Be aware of the strategy tools being used, they might be vital for the success of long-term planning and other organizational outcomes. ❑ Make the board a co-creating team. If the board does not have the necessary capabilities and eperience, compose it differently and heterogeneously.

◘ **Fig. 15.5** A framework to make long-term plans in times of and prepare for environmental shocks and high levels of uncertainty (author's own figure)

❓ Review Questions

> **Main Questions**
> Managers should address the following questions proactively: who (roles and involvement) is responsible for strategizing? When (process), how (interactions), how regular, for how long, with whom and with what tools does strategy happen in our organization?

Addressing these questions will help aviation managers to use uncertainty proactively and productively, make plans during times of environmental shocks and strategically innovate, adapt and emerge successfully from shocks. Also, these theories and frameworks will enable aviation managers to be well-prepared for future shocks through creating a common understanding for long-term planning as well as by developing a more resilient organization that is better prepared for such high levels of uncertainty.

❓ Ten Key Questions to Answer to Embrace Uncertainty in Long-Term Planning

1. Was COVID-19 a black swan or not? Please discuss the implications of COVID-19 for long-term planning of an airline in detail.
2. What is a main theory in strategic management that helps to understand and embrace uncertainty as an important factor for long-term planning?
3. What are the three steps to develop dynamic capabilities?
4. What are main aspects of the first step to develop dynamic capabilities?
5. What are main aspects of the second step to develop dynamic capabilities?
6. What are main aspects of the third step to develop dynamic capabilities?
7. What is a good example of a company that developed dynamic capabilities in the aviation system? Please describe the example in detail and discuss the main benefits of each phase.
8. What are main aspects to be aware of when preparing for high levels of uncertainty in the long-run?

9. What kind of dialogue is important in times of high levels of uncertainty? Describe it in detail and discuss the main benefits of it.
10. What kind of role should Board of Directors play in times of high levels of uncertainty? Describe the role in detail and discuss the benefits this role has for long-term planning.

Appendix: Checklist for Aviation Managers to Make Long-Term Plans to Use during Times of Environmental Shocks and to Prepare for them

This is ought to be seen as an aviation checklist for long-term planners of aviation organizations in times of environmental change. Strategic managers may use this checklist for long-term planning during and after environmental shocks and in times of environmental uncertainty:

During an environmental shock:

— Do not exaggerate the current, short-term developments, because of unproductive uncertainty.
— Introduce a three-step process to embrace uncertainty in the organization by sensing changes, seizing opportunities and transforming the organization accordingly.

To prepare for future environmental shocks:

— Develop a common strategy language, introduce uncertainty as a standard factor for long-term planning, manage uncertainty proactively and make long-term plans accordingly.
— Foster a continuous dialogue with formal and informal strategy meetings on various levels of the organization and with various stakeholders.
— Be aware of the strategy tools being used; they might be vital for the success of long-term planning and other organizational outcomes.
— Make the board a co-creating team. If the board does not have the necessary capabilities and experience, compose it differently and heterogeneously.

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