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Generating Opportunity from Uncertainty

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Introduction

Uncertainty both pervades the current international security environment and obstructs our view of how this environment will evolve.

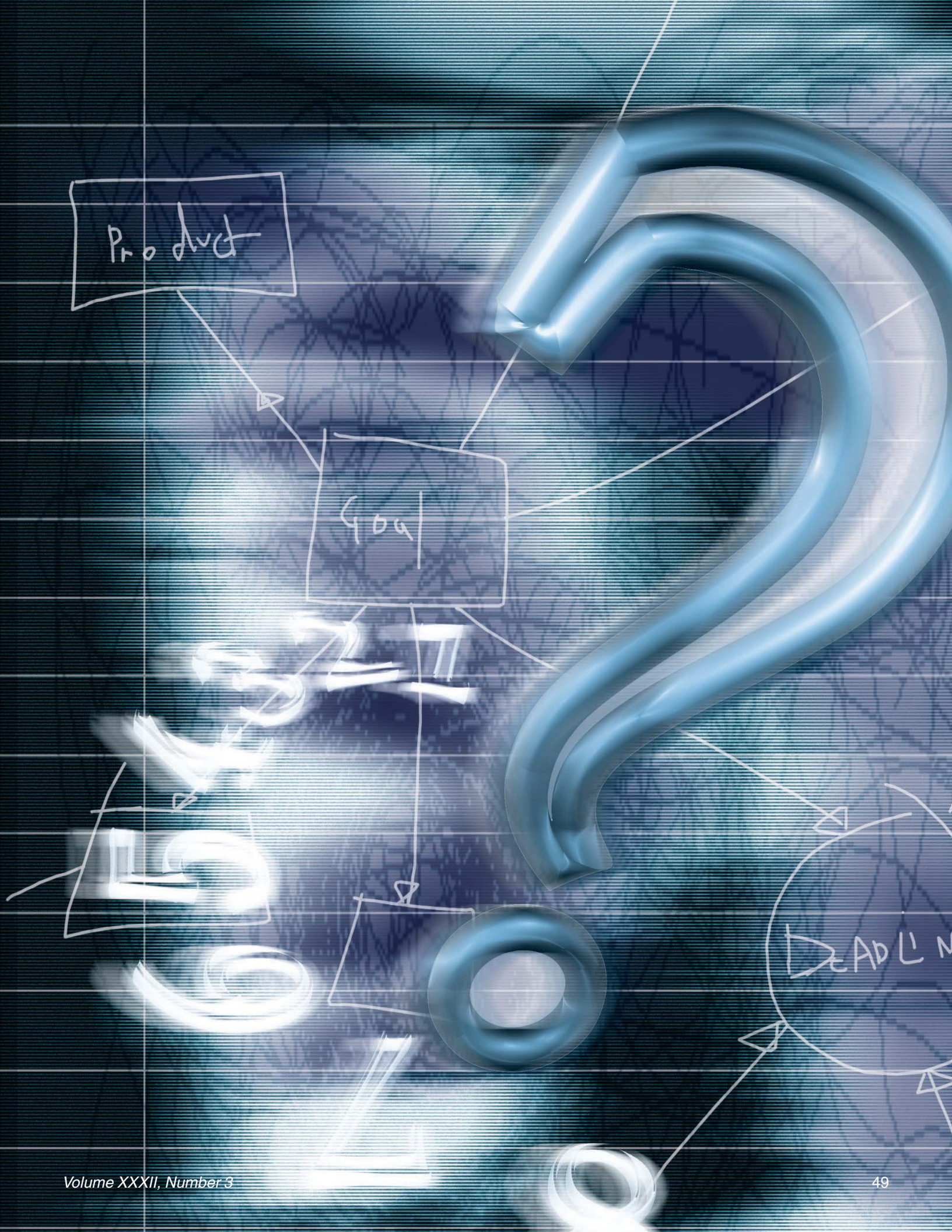
—David C. Gompert [1]

While the world displays growing strategic uncertainty, a potential disconnect has developed between military and business leaders on the treatment of uncertainty. The common view held today in business is reflected in the observation that organizations "abhor uncertainty."[2] Meanwhile, the military has long faced uncertainty in the conduct of war.[3] As a result, military leaders act on the best information available about how a human enemy will reason or react. Military theorists are familiar with uncertainty from Clausewitz's term *fog* that refers to the general unreliability of information.[4]

Uncertainty relates to both the existing *state* of an organization's environment and future *outcomes*. Uncertainty about the existing state an organization finds itself relates to vague, fragmented, unstructured, and the contradictory nature of information at a given time. Uncertainty surrounding future outcomes results from an imperfect understanding of variables and their relationship to enable predicting future outcomes. For both state or outcome uncertainty, at least some uncertainty remains irreducible in that not all available information or possible outcomes can be known with certainty.

Uncertainty tolerance is an important aspect of personal and organizational resilience. Similar to the relationship between a person's stress and performance, or teams and conflict, it is likely that organizations perform best under conditions with some uncertainty.[5] After it is introduced, uncertainty likely stimulates organizations to take actions to become more robust. Uncertainty creates stress by limiting the usefulness of interpreting information with current procedures.[6] The response to this stress is adaptive behaviors to increase uncertainty tolerance. However, uncertainty can progress beyond levels that can be effectively managed.

Well-led organizations display greater uncertainty tolerance and are more adept at operating under uncertainty. They will have an advantage over organizations less tolerant of uncertainty. While uncertainty can reach a point where it exceeds an organization's tolerance and performance falls, the performance of organizations at the same level of uncertainty varies based on their tolerance to it and impact the effectiveness of organizational responses to a changing environment. The goal therefore is not to eliminate uncertainty, but to benefit from it through sound leadership. If differences in operating under uncertainty exist between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organizations, a competitor with greater uncertainty tolerance will benefit from some uncertainty. Therefore, an obvious military strategy is to reduce the amount of fog (or uncertainty) you face about a situation's state or likely outcomes relative to an adversary. Leaders that use uncertainty to create opportunities display the most advanced system of thinking about strategy.[7] The goal is to change the rules of the game or get inside a competitor's decision cycle, so leaders and their organizations can achieve success.[8]

The military's history of facing an uncertain strategic environment provides examples and guidelines for facing and taking advantage of uncertainty. Outlining how leaders can better respond and prepare their organizations for uncertainty is the goal of this article. The article proceeds by first outlining an historical example, and then using it to develop responses leaders can take to increase their organization's ability to handle uncertainty. Before concluding with a discussion, the performance implications of uncertainty tolerance are considered.

Historical Example

An early example of the impact of uncertainty on a military organization comes from a Greek mercenary force of 10,000 hoplites (infantry equipped with shields and spears) that served and traveled into Persia with Cyrus, a contestant for the throne of the Persian empire around 401 BCE.[9] Following the battle of Cunaxa, where Cyrus was killed by the forces of his older brother Antaxerxes II, the real journey of the Greeks began, as their worst fears were realized with the death of their sponsor.[10] The Greeks were in hostile territory over 1,000 miles from home.[11] Additionally, the promise of wealth that initially motivated them disappeared with the death of Cyrus. Further, the Greek hoplites had already traveled and plundered the most direct route home—largely a flat plain that provided an advantage to the Persian cavalry.[12] Following the execution and capture of their leaders, the Greek mercenaries banded together, formed a council, and chose the uncertainty of going north into the uncharted territory of the Carduchian mountains.[13]

Following the decision to go north, the Greeks adjusted their tactics and invested to improve their capabilities as a military force. The Greeks first improvised their formation to form a hollow square surrounded by hoplites to protect their baggage train and camp followers.[14] This change alone did not offer protection from Persian archers and slings, as these light troops could engage the Greeks from long range and disperse before they could be engaged in close combat. Therefore, the Greeks scavenged for horses to field cavalry, and invested in slings and bonuses for people willing to volunteer as slingers.[15] The Greek slingers used lead, an improvement over the stones used by Persian slingers, providing the Greeks a greater effective range.[16]

The retreat north welded the different Greek divisions together with the common purpose of returning home. As the Greek force entered the mountains, the Persian army stopped its pursuit because few Greeks were expected to survive the oncoming winter. Additionally, the Greeks had no maps and the local inhabitants greeted them with hostility. Constant attacks threatened to separate the Greek force as it stretched out along mountain trails. The need for information resulted in sending scouting parties to find routes and places to make camp and to search for hostile activity. The need for information also led the Greeks to take and question local prisoners. At one point, when faced by a dead end guarded by hostile forces, two prisoners were questioned about alternate routes.[17] When the first denied any alternative in the face of threats, his throat was cut in front of the other. The remaining prisoner provided the Greeks another route through the mountains, yet Greek losses in these few days were comparable to the three months they spent in Persia.[18]

Sighting the Black Sea offered the Greeks a false promise of the familiar and resulted in a splintering of the remaining 8,200 survivors into three groups.[19] The smaller groups were more easily harassed, and resulted in 1,000 Greek casualties in a single week.[20] Even when the mercenaries came upon Greek settlements along the sea, their reputation preceded them and the mercenaries were denied assistance. Not only were the Greek outposts along the Black Sea not Greece, but the mercenaries themselves were changed from their experience. The harried Greek mercenaries increasingly relied on superstition and ritual sacrifice to divine a way forward. Because they learned how to survive as soldiers, the journey of the Greeks ended similar to how it began—they became mercenaries in another fight against Persia.

The example of the Greek mercenaries and their response to uncertainty offers three lessons. First, organizations respond to uncertainty by investing in improving their capabilities. Second, change that coincides with uncertainty affects both organizations and their environment. Third, even in a changed environment improved organization capabilities remain valuable. How these lessons relate to uncertainty today is discussed next.

Responses to Uncertainty

Clausewitz identified two responses for managing uncertainty—intellect and courage.[21] However, the example of Greek mercenaries suggests additional opportunities. First, the degree of uncertainty that can be managed will be directly and indirectly influenced by a leader's actions. The Persian attempt to disband the Greeks by removing their generals was overcome by the Greeks forming a council that decentralized decisionmaking. Second, the Greeks took action to increase uncertainty tolerance. In response to environmental change, the Greeks used resources on hand to field slingers and cavalry to keep their forces competitive. Translating the Greeks actions to today offers two strategies for increasing uncertainty tolerance—learning and resource investment.

Learning

Learning reduces variation in performance and may involve one of the most important ways to reduce uncertainty.[22] Organizations continuously learn by gaining knowledge about their capabilities and environment, and learning faster than competitors provides an advantage. For example, the Greeks used scouts and took additional actions to learn more about their environment. Additionally, organizations can learn simply by exercising capabilities.[23] The Greeks adapted a hollow square formation and developed cavalry to protect their movement from Persian attack. All organizations exhibit a capability to learn. Experience increases the organization's ability to effectively handle the amount of uncertainty.

Knowledge is dynamic in the sense that the best source for gaining additional knowledge is reflecting on what someone

already knows. The fact that knowledge builds on itself causes people with similar experience to develop their own language for discussing ideas. As a result, organizations under similar conditions evolve in similar ways as the demands of an organization's environment lead to the exercise of similar capabilities. The result is for professions to display a common body of knowledge.

The creation of standard bodies of knowledge also encourages specialization.[24] Specialization decreases an organization's variance by improving identification of possible outcomes and understanding of cause and effect, or increasing its uncertainty tolerance. Specialization can also increase variance between organizations by enabling an organization to develop a protective niche where it has a better understanding of the potential outcomes for change. The military equivalent to specialization is combined arms—the Greeks expanding their infantry resources to also include cavalry and slingers with ranged attack. Leaders will give their organizations the best ability to tolerate uncertainty by increasing the diversity of specialization. When uncertainty occurs where an organization has specialized resources, it will be better positioned to respond to change.

Resource Investment

Leaders can develop an expectation for change by investing to improve an organization's resources. Uncertainty helps justify higher investment by providing organizations appropriate resources to respond to competitors.[25] The ability of organizations to benefit from uncertainty varies because of differences in learning and level of resource investment.

Resource investment likely facilitates innovation by enabling organizations to act in accordance with the demands of an uncertain environment.[26] For example, the environment the Greeks faced led to their investment in lead shot that gave their slingers a relative advantage against the Persians. Sustained investment develops valuable resources that build an organization's knowledge.[27] Specifically, an organization's investment decisions and experience develop knowledge and an ability to recognize and exploit information.

As capability grows, improved information results in an organization having greater understanding of its environment and for new resource combinations that result in innovation. Innovativeness enables organizations to meet the demands of an uncertain environment by enabling sporadic or even continuous adjustments to organization resources and products.[28] Developed resources help predict the probability of success under uncertain conditions and provide resources that can be applied to other uses. For example, the Greek hoplites fielded cavalry from horses and soldiers already within their group or from available resources that improved their performance. As such, knowledge and resources have greater utility in uncertain environments because they build uncertainty tolerance and allow organizations to adapt and take advantage of opportunities.

However, resource investment offers diminishing returns because uncertainty persists in the face of efforts to reduce it. Continuing change may alter previous relationships resulting in a mismatch between an organization's actions and its environment. Still, organizations should continue to invest in new capabilities. Foremost, investments can introduce new resources and pave the way for organizational change. For example, the Greeks' survival was aided by combined arms or fielding cavalry and slingers that complemented their core hoplite infantry. Additionally, success in using new capabilities may depend on interactions with other capabilities or provide an organization the ability to surge or respond to challenges.

Even in the face of diminishing returns, continued investment still offers relative advantages. First, organizations may not represent an equal threat to one another or have the same uncertainty tolerance. Leaders need to recognize they only need better information than competitors, not perfect information, to have an advantage. Second, unsuccessful investments are still worthwhile because knowledge generated will often be useful elsewhere in an organization or in other contexts.[29] In other words, developed resources continue to have a residual value that provides a safety net for continued investment. Finally, uncertain environments may magnify the perceived value of developed capabilities. For example, the experience of the Greek mercenary force in retreat from Persia only made them more valuable in the next conflict.

Uncertainty and Performance

Leaders need to consider the impact uncertainty will likely have on their organization's performance. The initial impact of uncertainty will be reduced performance until adjustments are made. As an organization adapts, tolerance of uncertainty increases and performance should improve. For example, the Greek hoplites were at a disadvantage to Persian slingers until they adjusted their tactics. Organizations take action to reduce uncertainty by improving available information. As swift moving environments challenge beliefs, successful organizations accept the need to have an ability to adjust by building in the expectation for change.[30] For example, the uncertain environment confronting the Greek mercenaries served to clarify their goals and strengthen their organization.

When uncertainty is accepted performance improves. It provides purpose and efforts to increase knowledge and make better choices. For example, it has been observed that people learn to respond to chance in proportion to their observations, or try to maximize the number of times they are right by alternating their predictions instead of making the same bet every time.[31] From the perspective of organizations with better information, knowledge should translate into making better decisions based on a superior understanding of likely outcomes. A complication is that people tend to have difficulty recognizing when information is sufficient, past experience no longer serves a useful guide, or there is too much information.[32] Too much information can result in worse decisions because irrelevant information simply serves as a distraction.

If the environment continues to shift and no reliable information on which to base decisions is available, performance will decline rapidly. The only condition consistently leading to success other than superior information is luck.[33] As the number of potential outcomes expands, small changes can have a big impact and it may be difficult to know what has changed. The implication is that uncertainty—even with knowledge—can reach a point where continued success will depend on luck.[34]

Even though luck plays a role, organizations with greater knowledge should enjoy luck more often. Differences in

uncertainty tolerance should help explain differences in organizational performance. When uncertainty begins to exceed an organization's ability to easily respond, small differences in the ability of organizations to cope with uncertainty will make a difference. In uncertain environments, the ability to make more informed decisions rapidly will provide an advantage over competitors.

Increased luck may relate to leaders knowing their information is better. Differences in experience and accumulated knowledge result in different perceptions of opportunity for the same situation. For example, it has been observed that uncertain prospects are viewed as less attractive when they are also considered by someone else that is perceived to be more knowledgeable.[35] Though leaders may not know a complete set of outcomes, they may be able to rule out *bad* choices or identify better decisions than rivals.

Conclusion

Decisions are made despite uncertainty—even taking no action is a decision. Better decisions are likely to be made under conditions where an organization can tolerate and manage greater amounts of uncertainty. As a result, the impact of uncertainty on organizations is more complex than has generally been recognized. Leaders can make their organization's tolerance for uncertainty more robust. While its introduction may be unpleasant, uncertainty likely leads to a closer examination of the environment and an organization's role in it. This should contribute to expanding an organization's ability to make decisions based on identified potential outcomes, and improved decisionmaking from better information should contribute to higher performance. Doing better than competitors depends on higher tolerance of ambiguity from learning and capability development that ensures better information than its rivals on a range of topics. As such, leaders should ensure their organization avoids specializing in too few areas.

Leaders can apply several lessons learned from the observations and arguments explored here. First, attempting something is the first step toward managing uncertainty, as an outcome is certain only when no attempt is made. For example, instilling the belief that something is impossible will likely preclude any achievement inconsistent with that belief. As a result, it is on the margins where leaders make the biggest difference. If things went according to plan, we would not need leaders. At the same time, greater demands and discretion under conditions of uncertainty increase the responsibility for leaders to act appropriately—integrity first.

Leaders also need to dedicate time to figuring out what they want to achieve and how to get there. The challenge is to achieve "transformation that is revolutionary in result and evolutionary in execution."[36] The spoils will go to leaders of organizations that manage uncertainty to favorable outcomes by making their own luck along the way. There is no *one* way to be successful. Leaders should seek to employ workable solutions that can be adjusted as additional information becomes available, rather than waiting for perfect solutions that risk irrelevance.

Notes

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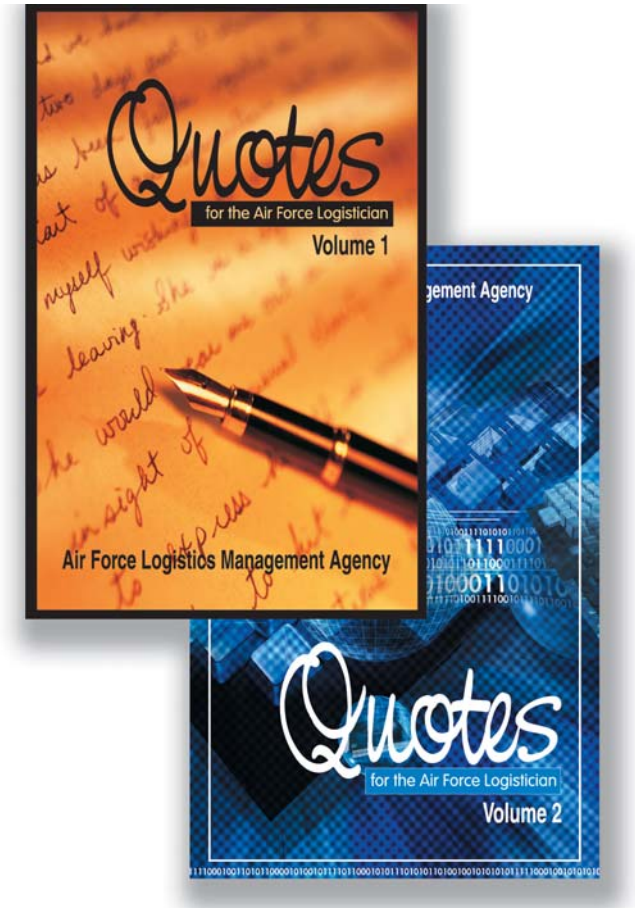

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