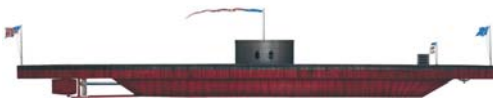


THE MONITOR AND MERRIMACK



Newsletter of the
Greater Hampton Roads Chapter
District 02 – Chapter 03
SOLE – The International Society of Logistics
February 2009
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Chapter Management Committee

Chapter Chairperson:
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Vice Chair – Membership:
Charlie Littleton
Vice Chair – Admin:
Vacant
Vice Chair – Finance:
Rick Treto
Vice Chair – Education:
Lee Morris
Vice Chair – Professional &
Technical Development
Vacant
Logistics Education Foundation
(LEF) Liaison
Vacant
Newsletter:
Carl Lilieberg
Web Master:
Charlie Littleton
District Director:
Jon Jay Buder DML

From the Chapter Chairman:

Our January Luncheon which featured Mr. Stan Walz, CEO of vectorCSP speaking on logistical transformations in process for our U.S. Coast Guard drew a number of attendees from many local companies and local Coast Guard active duty personnel. Please see highlights on page 4. We look forward to our February speaker Mr. Warren Hammer who is from the Global Logistics Forum's Virginia Economic Partnership. He will address "Simplifying Site Selection and International Trade. This is a timely subject with the trying economy. Please see the flyer on page 5 of this newsletter.

We also have a confirmed date for a tour of the Maersk Lines' APM Terminal on Wednesday, 18 March, and we are also planning a tour of the Naval Air Terminal (Air Mobility Command) in April. We are liaising with the Tidewater Chapter of the National Defense Transportation Association (NDTA) for these two tours. Our Education Vice Chairman, Lee Morris, is working on a possible presentation by Old Dominion University's Maritime College of Business and Public Administration. Brandon Cholek is also endeavoring to arrange a fall tour of an Amphibious Assault Ship's Logistics Operations at the Naval Operating Base, Norfolk.

SOLE Headquarters' details on the 44th Annual Conference and Exhibition to be held in Dallas (Irving) Texas at the OMINI Mandalay Hotel (16-20 August 2009) is featured on page 8 of this newsletter. This year's conference is on "The Logistics of Global Security", a topic with wide ranging importance in current times. A Call for Papers is also enclosed herein.

Minutes of our January Chapter Business Meeting are on page 7 below. Our February Business meeting occurs on Monday, 9 February at the Life Clyde Engineering Offices on Robin Hood Road from 5:30 to 7:30 PM, and all members and interested local logisticians are welcome to join us.

We lost one the premier logistics leaders with the passing of Mr. Cliff Geiger (please see the Memoriam on page 6).

Our GHRC Leadership is hard at work setting up a wide variety of interesting and timely luncheons and tours. These are also a great chance to network with your fellow logisticians.

I hope to see you at our next meeting.

Carl J. Lilieberg
Chairman

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Certified Professional Logistician Corner



The next CPL Exam
will be given in
May 2009

1. Budgeting and accounting function is designed to provide:
 - a. information to stockholders, creditors, the government, etc.
 - b. information for the control of on-going systems.
 - c. the basis for performance evaluation and control of approved systems or projects,
 - d. all of the above.
2. Costs should be categorized so that:
 - a. all the product or system cost elements should be considered.
 - b. the most important types can be isolated and other costs eliminated from consideration,
 - c. both a and b.
 - d. none of the above.
3. Operating costs are:
 - a. one time costs.
 - b. cost per unit.
 - c. recurring costs,
 - d. none of the above.
4. Opportunity costs are:
 - a. costs that vary with the output of the system,
 - b. costs connected with foregoing other alternatives.
 - c. sunk costs.
 - d. net present values
5. Marginal costs are:
 - a. those costs having to do with a decision made now that will result in new costs.
 - b. those costs that are a by-product of the major system outputs.
 - c. less important costs.
 - d. one time costs.
6. The time value of money concept involves:
 - a. a dollar in hand now is worth less than a dollar to be received at a future time.
 - b. money has the same value at all times,
 - c. a dollar in hand today is worth more than dollar to be received a year from now.
 - d. all investments will be worth more in the future.
7. When comparing different alternatives against one another we will usually find that the different alternatives have:
 - a. different streams of dollar costs spread out through the lifetimes of the alternatives being evaluated.
 - b. different streams of benefits that might be directly measured in dollar terms.
 - c. different lifetimes.
 - d. all of the above.
8. A present value is:
 - a. a future value that has been discounted.
 - b. the book value of an asset.
 - c. the current value of the business.
 - d. the value of inventories on hand.
9. Internal-rate-of-return is:
 - a. the rate of return that gives the investor the most benefits as compared to costs
 - b. that discount rate that would equate the present value of lifetime benefits with the present value of the lifetime costs.
 - c. that discount rate that would equate the present value of different alternatives with one another.
 - d. none of the above.
10. Net present value is:
 - a. the breakeven dollar amount for an alternative
 - b. The value of the one time initial investment in a system or program.
 - c. the difference between the present value of benefits and the present value of costs for an alternative.
 - d. the discount rate required to have lifetime benefits just equal to lifetime costs.

Please see answers on page 3

Calendar of Events

ASNE	Dinner Meetings:	Every 3 rd Tuesday, Springhill Suites, Newtown Road, Va. Beach, (1800-1900 Social Hour); 1900-2030 Dinner and Program; Reservations: Mary Morgan (757) 495-1970
	18 February 2009	Michael Golda, Chief Technologist NSWC; Technology Innovations in Propulsion and Auxiliary Machinery Systems
SOLE	18-20 August 2009	SOLE 2009: "The Logistics of Global Security" Dallas (Irving), Texas
GHRC SOLE	18 Feb 2009	Mr. Warren Hammer, Va. Economic Development Partnership Luncheon (#1 Chinese, Wards Corner)
	18 March 2009	Tour of Maersk APM Terminal, Portsmouth, Va.
PEC	21 Feb 2009	Peninsula Engineer of the Year Banquet, Point Plaza Hotel, J. Clyde Morris Blvd. Hampton (tickets available from Carl Lilieberg until 6 Feb 09)
Hampton Roads Navy League	20 February 2009	Annual Dinner Meeting; Vista Point Center, 1754 Massey Hughes Drive, Naval Station Norfolk Admiral Gary Roughead, USN, Chief of Naval Operations navyleague@earthink.net (757) 486-7675 Reservations Required
Inst. for Def, & Govt Advancement	March 16-19, 2009	7 th Performance Based Logistics conference, Washington, DC., E-mail: sherryl.jacobs@idga.org Phone: 416-597-4710 Fax: (416) 24 hours/day

Answers			
1	d	6	c
2	a	7	d
3	c	8	a
4	b	9	b
5	a	10	c

Logistics Levity*If opportunity doesn't knock, build a door.*

—Milton Berle



Our January 21st Luncheon featured Stan Walz, CEO of vectorCSP, LLC, who gave a superb overview of the latest U.S. Coast Guard logistical changes and organizational constructs. The meeting was well-attended and gave our local logisticians a detailed insight into the wide array of updates and improvements in Coast Guard Supply Chain Management. He outlined how these changes have had a measured impact on efficiency and effectiveness in carrying out their many missions critical to our nation's homeland defense, disaster readiness, drug enforcement and maritime safety. He also pointed out the importance of Performance Based Logistics and career training paths of acquisition and maintenance personnel. Stan fielded many questions from our attendees. We all gained a better perspective of the true transformational nature of our modern Coast Guard and how he organizational and contractual support elements work together. Many thanks, Stan for traveling all the way from Elizabeth City, N. C. to be our speaker.

Luncheon Meeting

**SOLE – The International Society of Logistics
Greater Hampton Roads Area Chapter**



Wednesday February 18, 2009

11:30 – 1:00 PM

#1 Chinese Buffet

Ward's Corner

Norfolk, Virginia

Guest Speaker:

Mr. Warren Hammer

Global Logistics Business Development

Virginia Economic Partnership

Topic:

“Simplifying Site Selection and International Trade”

**Please RSVP by contacting our Membership Vice Chairman Charlie Littleton at clittleton@LCE.com or phone him at 757-857-1311 (4203) or Carl Lilieberg at 896-5335
NLT 4 PM Tues. 20 January 2009**

Please join us for a luncheon of great food, professional contact, and an informative logistics presentation. Spouses and guests, bosses and co-workers are welcome and you DO NOT need to be a SOLE member to attend!

Driving Directions: From 1-64 E through the HRT. Take the I-564 exit onto US 460W (Granby St/Naval Base). Take the left ramp to Granby. Turn right onto Granby and the restaurant is on your right after passing the railroad crossing. From 1-64 W: Take I-64W to VA 165-Little Creek Road off ramp onto Taussig Blvd. Turn left onto Granby St. and after crossing the railroad restaurant is on your right.

IN MEMORIAM**Clifford G. Geiger, Jr.****1939 - 2009****On Monday, January 12, 2009 of Crofton, MD**

Cliff Geiger was one of nation's leading Logistician's and a consistent supporter of SOLE-The International Society of Logistics

A Great American

Whether he has lent his engineering expertise to the public or private sector, one theme has carried through Clifford G. Geiger's prestigious career: helping to protect the United States and keep it strong in the world.

An international authority on long-range systems engineering, Mr. Geiger was the founder and president of Geiger & Associates, Inc. His consulting firm provides services to the U.S. Department of Defense and to private sector companies doing business with the department. But Mr. Geiger has spent most of his career—more than 25 years—with the U.S. Navy, where he rose to the highest level for career executives and formulated Navy policy.

After beginning his engineering career with the Sperry Gyroscope Company, the native of Brooklyn, N.Y., joined the Naval Ship Systems Command, where he held positions in engineering, logistics and program management. His career soared when he was chosen for the Senior Executive Service, as senior acquisition logistician in the Naval Material Command. He later rose to deputy commander of Fleet Logistics Support, Naval Sea Systems Command, and, finally, to assistant and acting deputy chief of Naval Operations (Logistics). In this position, Mr. Geiger formulated Navy policy and programmatic direction for the Chief of Naval Operations in all matters of logistics, including supply, maintenance, environment, housing, outsourcing and the Combat Logistics Force.

He was an expert in Navy policy and programs associated with outsourcing of weapons systems support, outsourcing and privatization of infrastructure functions, base realignment and closure, and dual-use technology programs. Mr. Geiger was promoted to SES Level Six, the highest rank for career executives, in 1996.

He rejoined the private sector in 1997 when he was appointed president of Unified Industries Incorporated. There, he also found much success, as the company went from receiving \$9 million in revenue, but losing money annually, to receiving \$20 million in revenue and record profits each of his last three years there. In 2002, he founded Geiger & Associates.

Despite his important responsibilities, Mr. Geiger has found time to devote to Stevens and nurture the next generation of systems engineers. He served on the Stevens Board of Trustees (1996–1999) and was a chief architect of the Institute's Systems Design and Operational Effectiveness graduate program, established in 2001 as part of Stevens' Systems Engineering and Engineering Management Department. He currently chairs the program's advisory board.

Mr. Geiger has received many honors, including the Presidential Rank of Meritorious Executive in 1989, the Presidential Rank of Distinguished Executive in 1995, the Department of Defense Distinguished Civilian Service Award in 1997, the American Society of Naval Engineers (ASNE) Gold Medal and **the Society of Logistics Engineers Founders Medal**. He was an active member and past national vice president of ASNE and was a past chairman and member of the Board of Advisors for the Society of Logistics Engineers.

A graduate of the Industrial College of the Armed Forces, Mr. Geiger has done graduate work at George Washington University. As a Stevens student, he was a member of the Beta Theta Pi fraternity.



Greater Hampton Roads Chapter
SOLE – The International Society of Logistics

Chapter Business Meeting Minutes

Date: January 12, 2009

Location: Life Cycle Engineering office, 5301 Robin Hood Rd. Suite 108, Norfolk, VA

Meeting Convened: 5:30 PM

Meeting Closed: 6:45 PM

Attendees:

- Carl Lilieberg, Chapter Chairman
- Charles Littleton, Vice Chairman Membership
- Lee Morris, Vice Chairman Education
- Brandon Cholek, Member
- Tom Jett (by phone).

Minutes:

The Chapter Chairman called the meeting to order.

The Chapter Chairman asked for comments on the minutes from the last business meeting and touched on some areas for comments/actions. The Chapter Chairman declared a quorum of the Chapter Leadership was in attendance. Specific discussion was deferred to selected actions on the meeting agenda. The vice Chairman for Finance provided the balance of the chapter's funds via email. Charlie Littleton discussed the recent Chapter Membership report he received from Headquarters which underlined the need for our leadership to continue to aggressively pursue our actions to expand information and reach out to local logisticians. There was a recommendation which was seconded to approve the December 2008 minutes, and they were so approved by all attending. .

The Vice Chairman Treasurer was not in attendance. The Chapter Chairman will send to the Chapter Management Team the current Chapter budget information.

The Chapter Chairman noted that our annual budget had been submitted to SOLE Headquarters IAW the SOLE Operations Manual.

New business was discussed with a review of the Points of Contact matrix our Membership Committee has structured discussed by all with Brandon Cholek leading. He emphasized a need for each Chairperson assigned various areas to expedite there actions to identify Points of Contact. We then discussed progress on the Tri-Fold handout which Brandon indicated was nearing completion. The Chairman noted that he had a POC from another Society he was a member of who would review our product, probably a not cost.

The Chairman again discussed the PEC Engineer's Week Career Days Exhibition and said we had contributed funds to support it in years past and asked for approval to do so this year. A motion to so support it was made and seconded.

The Chairman opened the discussion regarding a proposed tour of the APM Terminal in Portsmouth (Charlie Littleton is lead on this) and announced he had gotten agreement from the Naval Air Terminal (AMC Terminal) for a tour of that facility in April (probably the 3rd week during our normal luncheon time). He also announced that he had talked to Paul Vanhoosen of the Tidewater NDTA and they were interested in joining our Chapter on the March and April Tours (subject to their Board approval). The Chairman admitted he had not placed the new plan to fix the costs for the luncheons to a price of \$15.00 per attendee for the current venue. He will do so in the February Newsletter and Flyers for that meeting.

There was discussion concerning sections of the contacts list and Lee Morris promised to get the Educational list to us ASAP. The Chairman has action to work on the commercial contacts list (hospitals etc). Lee mentioned the TCC and ODU professional days as a great opportunity to get our Chapter information out re networking and student support. There was also mention of the Young Logistician award and coupling it with attracting local logistics students and sponsoring a membership for the selectee.

There was general discussion of the need to get specifics of the SOLE Designated Logistician Program defined for all the Chair persons and ensure we always had the information at all meetings, in addition to the CPL procedures.

Actions taken were: Brandon Cholek and Tom Jett – complete the GHRC Trifold format for printing.

Lee Morris – complete the Educational Points of Contact information. Carl Lilieberg – update the next newsletter with the new \$15.00 meeting cost (includes food – tax and tip). Carl Lilieberg – firm up the April Air Terminal Tour. Charlie Littleton – firm up the APM Tour for March. The Chapter Chairman also took action to share the Chapter membership records with those Chapter Vice Chairs who may not have them and bounce the list Charlie Littleton has with the list posted in the SOLE Web.

The Chapter Chairman asked for additional comments or business having had no comments asked for a recommendation to close the meeting. The motion was made and seconded and then approved by the attendees.

The Chapter Management business meeting was closed at 6:45 PM.

SOLE – The International Society of Logistics

presents

SOLE 2009

44th Annual International Logistics Conference and Exhibition

The Logistics of Global Security

18-20 August 2009

Dallas (Irving), Texas

For more information contact:

SOLE - The International Society of Logistics

8100 Professional Place, Suite 111
Hyattsville, Maryland 20785-2229 USA
Phone: 301-459-8446
Fax: 301-459-1522

Hot News

SOLE 2009 Call For Papers Announced - SOLE - The International Society of Logistics (SOLE) presents its 44th Annual International Logistics Conference and Exhibition, to be held at the Omni Mandalay Hotel at Las Colinas, Dallas (Irving), Texas from 16-20 August 2009. With a conference theme of "The Logistics of Global Security," the symposium will offer three full days of exciting, educational and topical offerings designed to provide logisticians from all countries a unique understanding of the issues associated with security in logistics processes. Some of the world's leading subject matter experts will lead the conference attendees in addressing a broad spectrum of issues critical to understanding the significance of logistics in the emerging global security environment. Representatives from Government, the Armed Services, Industry and Academia – both nationally and internationally – will serve as keynoters, plenary and panel participants, and paper presenters.

SOLE 2009 will offer paper presentation sessions that address the many faces of logistics in global security, to include but not limited to: designing for security, security in the manufacturing process, security in humanitarian and disaster relief operations, multimodal transportation security, logistics technologies enabling global security, the role of space in economic security, and the security challenges of information technology. If you are interested in submitting a paper for consideration, please submit an abstract by 15 April 2009. If accepted for SOLE 2009, the paper must be submitted no later than 31 July 2009 – with the slide presentation to be submitted by 5 August 2009. For additional information and submissions, please contact either John (Jay) Erb, SOLE 2009 Deputy Chair, at (703) 246-0756 or SOLE Headquarters at (301) 459-8446. Only electronic submissions will be accepted at john.erb@gdit.com.

Generating Opportunity from Uncertainty

David R. King, PhD, Lieutenant Colonel, USAF
(Reprinted from USAF Logistics Journal, Fall 2008, Volume XXXII, #3)

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 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 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

Continued on Page 10

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 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 decision-making. 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

Continued on Page 11

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. 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, 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

Continued on Page 12

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 decision-making 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.

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