Marines with Weapons Company, Battalion Landing Team, 3rd Battalion, 5th Marines, fire Carl Gustav rocket system during exercise Talisman Saber 17, Queensland, Australia, July 21, 2017 (U.S. Marine Corps/Amy Phan)

Thinking Differently about the Business of War

By Neil Hollenbeck, Arnel P. David, and Benjamin Jensen

Woven through our professional military discourse are threads of two different schools of thought with colors that clash. One school sees continuity in war and argues for renewed emphasis on core warfighting competencies. The other sees change in war and argues for reevaluation of the merits of those same competencies. A similar debate plays out in business literature. In a fiercely competitive and constantly shifting business environment, is success about the willingness to change with the times or the ability to focus on the fundamentals?

According to the 2018 National Defense Strategy, we are entering an era of great power competition and rapid technological change.[1] In his May 2017 testimony to the Senate Armed Services Committee, Chief of Staff of the U.S. Army General Mark Milley warned of "a fundamental change in the character of warfare."[2] His comments were consistent with predictions reported in a 2015–2016 Army study projecting trends likely to influence the future warfighting environment.[3] Among its conclusions were that the future U.S. military may be dramatically challenged by a convergence of factors, including the proliferation of low-cost sensors, precision-strike technology, robotics, and information technologies

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that change how people receive, manage, and use information.

But new technologies do not revolutionize war. New *warfighting models*—that is, ways of organizing and fighting with technology—do.[4] This is what makes military preparedness during periods of rapid technological change so difficult. Applying the new tools to the same business is not enough. To fully exploit the potential of the new tools, we must actually change how we do business—sometimes radically. The business equivalent of a change in the character of war is *market disruption*. For all the attention lavished on "disruptive technology," new technologies do not disrupt markets. New business models—ways of profitably delivering value to customers—do.

According to a 2015 IBM survey of 5,200 senior executives, business leaders are increasingly concerned about getting blindsided by market invasion from competitors with a disruptive business model—a sudden, fundamental change in the character of market competition that renders a firm's business model obsolete.[5] What would be the consequences of our getting blindsided by war with a competitor employing a disruptive *warfighting* model? What if a U.S. military with 5th-generation fighter planes and upgraded armored brigade combat teams is defeated by an adversary employing the Internet of Things and low cost, long-range drones to exploit military potential we never fully appreciated?

Strategy in any domain is about risk-reward calculations and tradeoff decisions; one may better understand the problems of one domain by seeing them alongside their counterparts from another. We describe how the business concept of competitive advantage applies in a military context. Then, using both military and business examples, we discuss how matching our warfighting model to the future operational environment entails two separate, strategic dilemmas. The first is how we choose to manage the inevitable mismatch between the requirements of the wars for which we optimize our force and those of the wars for which we do not—a dilemma

we face in any technological future. The second is how we mitigate the risk of strategic surprise by an adversary who fights with new technologies in a way that directly challenges our core warfighting model. Finally, we argue that, counterintuitively, the best strategy for avoiding strategic surprise could be to postpone large investments in specific systems.

Competitive Advantage in Business and War

At the heart of business strategy is an idea that lends itself to the military context—the concept of competitive advantage. A firm exploits a competitive advantage by tailoring its business model to its strengths and weaknesses relative to those of competitors. Business strategy revolves around cost and differentiation.[6] One firm may use a low-cost structure to undersell competitors. Another may garner price premiums by delivering value that its competitors cannot. Many kinds of advantages—for example, access to material, production experience, intellectual property, distribution networks, and alliances—can enable competition on one basis or the other. Business schools teach future managers to focus on sources of *sustainable advantage*—assets or attributes that competitors cannot easily replicate or nullify.[7]

Between 1987 and 2002, for example, American automakers responded to global competitors by incrementally improving vehicle quality and adding new features. But foreign competitors copied them so quickly that American automakers gained no lasting advantage.[8] In contrast, by introducing new sport utility vehicles and minivans, a vehicle class that foreign automakers lacked the experience and infrastructure to produce, American automakers gained a leap-ahead advantage they sustained for much longer.[9]

A source of competitive advantage need not be material. A company like Google might regard its human capital and culture as a source of advantage.[10] The U.S. Army, which spent the Cold War preparing to fight a technological near-peer, looked to doctrine, leadership, and training as sources of competitive

advantage.[11] This thinking was evidenced by General Norman Schwarzkopf's statement that the 1991 Gulf War would have been a lopsided victory for the United States even if the U.S. and Iraqi militaries had traded equipment.[12]

The U.S. military entered World War II with multiple deficiencies relative to the seasoned German armies then rampaging across Europe and North Africa. But the United States had advantages in geography, industry, and alliances. Around those advantages we employed a warfighting model suitable for the competitor and the competition. General Walter Smith characterized an aspect of it with his quip, "The American Army does not solve its problems, it overwhelms them."[13]

After 1945, facing a different competitor relative to which the U.S. military lacked some of those strengths, American strategists chose a different warfighting model built around different advantages.[14] To defend Europe from the Soviet Union's massive ground armies, the U.S. military positioned itself to compete on differentiation—fielding forces that could do things their Soviet competitors could not. Early on, America's lead in nuclear weapons nullified Soviet advantages in mass. When the Soviets closed that gap, the United States invested in smaller but qualitatively superior conventional forces, including skilled air forces equipped with stealth aircraft, precision-guided munitions, and well-equipped, aggressive ground forces trained to fight outnumbered and win.[15]

This warfighting model proved well-adapted to the requirements of the 1991 Gulf War. But in the words of Harvard Business School Professor Clayton Christensen, "The very processes and values that constitute an organization's capabilities in one context define its *dis*abilities in another."[16] Subsequent wars in Iraq and Afghanistan illustrated that a warfighting model optimized for war with a military peer—the military equivalent of an important but narrowly bounded area of business competition—could not transform resource inputs into security outputs with the same efficiency in a *counterinsurgency*—a competition

Personnel from Santa Fe Drilling Company and Red Adair Oil Well firefighters battle blaze from burning oil well set afire by Iraqi forces prior to their retreat from Kuwait during Operation *Desert Storm* (DOD/Dick Moreno)

that places only moderate value on attributes the U.S. military possesses in abundance and great value on ones it could not be reasonably expected to simultaneously display.

Facing the dilemma of a mismatch between their capabilities and the requirements of a particular competition, the U.S. military and businesses have used different versions of the same strategies.

The First Strategic Dilemma: Mismatch

Strategy One: Say No. In 1992, almost immediately following the U.S. military's spectacular Gulf War victory, the Chairman of the Joint Chiefs of Staff, General Colin Powell, strongly opposed a limited military intervention in Bosnia. The 1991 Gulf War, in which we used overwhelming force to defeat a Soviet-style infantry and tank army in open battle, had fit our military's warfighting

model well. But General Powell warned Americans not to expect similar results with the same military in a fundamentally different mode of war. He stated, "As soon as they tell me 'surgical,' I head for the bunker."[17]

Ultimately, political leaders overruled General Powell, and the U.S. military acted in Bosnia with mixed results. Many seasoned business leaders could sympathize—one may disagree with the boss's strategy and still be charged with making it work. But they also understand that there are strategic considerations beyond how well a market competition matches a company's business model. For example, securing a position in a backwater market may prevent competitors from securing a foothold from which they could threaten a more important market.

Over the courses of their careers, business and military leaders should expect to tackle mismatches and to be

judged, not unfairly, on the skill with which they handle them. Powell, for his part, oversaw multiple successful, niche market applications of U.S. military force. These included the removal of a dictator in Panama, a mission to rescue stranded international citizens in Liberia, and humanitarian relief operations in Bangladesh.[18]

Strategy Two: Be Yourself. "Hope is not a method" is a soldier's adage. It means that to address the problem merely by hoping against its worst outcomes is not to address the problem. But there are times when the strategy has appeal. In business, for example, adapting parts of a firm to improve performance in one market may weaken a firm's performance in another.

Professor Christensen wrote that a firm's resources, processes, and values determine what it can and cannot do. All three must align with the firm's business

model.[19] Its processes and values can make it successful in one market but not another, even if its resources are valuable in both.

Similarly, in the 1990s, custodians of the U.S. military's warfighting model resisted military missions they categorized as "operations other than war," such as peacekeeping.[20] President Bill Clinton's national security advisor summarized the view when he wrote, "Our armed forces' primary mission is not to conduct peace operations but to win wars. . . . We will never compromise military readiness to support peacekeeping."[21] Those who supported giving such missions to the military still resisted suggestions that the military be deliberately organized, trained, and equipped for them. They feared that, no matter what resources they retained, an organizational focus on peacekeeping and low-intensity conflicts might slowly distort the processes and values that made the U.S. military dominant in its most important conflict market—high-end, conventional war.[22]

These leaders understood that executing a strategy means making tradeoffs.[23] These are analogous to the phenomenon microbiologists call "fitness tradeoff," or "fitness cost."[24] When a microorganism adapts to become fitter in one environment, it often becomes less fit in another. For example, an organism that evolves to survive in cold environments may become less fit for warm environments. Business leaders taking the long view may rightly decide to reject a business model adaptation if the fitness cost in one market outweighs the fitness benefit in another. Military leaders, hedging against a myriad of future threats, do the same, but not always with satisfactory results.

During the 2000s, waging counterinsurgency with a military optimized for high-end war, the United States had excess capacity in assets it needed least, like heavy artillery and high-performance aircraft, and insufficient capacity from those it needed most, such as infantry, special operators, and civil affairs soldiers. Furthermore, military processes and values optimal for high-end war, designed to deliver shock and destruction, were often counterproductive in situations that required nuance and restraint. Facing the consequences of a severe model mismatch, the U.S. military embraced strategy three.[25]

Strategy Three: Adapt. The rationale for adapting a firm's business model to the needs of a market it serves is evident. In hard times, even massive firms with deeply rooted cultures, like General Electric (GE) and IBM, change.[26] So did the U.S. military during the Iraq War— an adaptation popularly associated with the 2007–2008 Surge campaign.[27] What happened in Iraq at that time and which factors most contributed remain hotly debated. But that the U.S. military adapted in response to a mismatch is not.

Today, U.S. military equipment, training, and culture—its resources, processes, and values—better position it for agility across a spectrum of mission types, from advising partners in the fight against the so-called Islamic State to full-scale war on the Korean Peninsula.[28] But while the generals of 2007 wrestled with the mismatch between the military's high-end warfighting model and a low-end conflict market, the generals of 2019 are taking inventory of the fitness tradeoffs made since 2001. As General Milley explained, "Today, a major in the Army knows nothing but fighting terrorists. . . . As we get into the higher end threats, our skills have atrophied over 15 years."[29] This begs the question, if it is hard for an organization good at many things to be good at anything, why not divide and specialize?

Strategy Four: Divide and Specialize. A common business response to a mismatch is to create a substantially separate business unit to optimize for the unique market. This is what Google did in 2015, when it created a parent company, Alphabet, so that leaders of different business units could "run things independently that aren't very related."[30] This is also what the U.S. Army did, in 1947, when it spun-off its air arm to create a separate military Service, the U.S. Air Force.

The first military aircraft in history was a Wright Model A, purchased by the Army in 1909. As aircraft technology matured, it played an increasingly significant role in war. Army aviation, consolidated into the Army Air Corps in 1926 and Army Air Force in 1941, grew increasingly focused on air operations not directly related to ground combat.[31]

In 1947, the United States created a parent organization, the Department of Defense (not so named until 1949), under which it organized the Departments of the Army, Navy, and newly independent Air Force.[32] The Marine Corps remained a separate military Service within the Department of the Navy—an organization optimized from its inception for a niche market within the wider market of maritime warfare. Today, some observers question whether cyber warfare might become such an important and unique market that it warrants its own military Service.[33]

In the 1960s, contemplating response options in the face of communist subversion in Asia, Latin America, and elsewhere, President John F. Kennedy believed that the U.S. warfighting model offered him only two choices: take no action or employ large conventional forces and risk war with the Soviet Union.[34] At the low end of war, he perceived an underserved market. Therefore, he championed investment in special operations forces.[35] Over time, Green Berets, optimizing for the unique markets they serve, have grown increasingly independent of and culturally distinct from the wider Army.

Divide and specialize strategies can be particularly attractive. But they can also have hidden costs. With the creation of separate air forces, the Army lost control of certain types of aircraft that support ground operations. In contrast, the Marine Corps maintains its own fleet of jet fighters, separate from those of the Air Force or Navy. In creating Special Forces, the Army also subjected its other units, especially ground combat units, to internal competition for talent.

The Second Strategic Dilemma: Disruption
Volumes of business literature address firms' failures to survive business model disruption. Business students study the demise of Kodak and Blockbuster

U.S. Special Forces conduct downed pilot simulation using new gear to assess operational effectiveness for Army Warfighting Assessment 17.1 exercise at Fort Bliss, Texas, October 18, 2016 (U.S. Army/Alexander Holmes)

the way West Point cadets study the defeat of the Spanish Armada in 1588 and of Poland and France in 1939 and 1940, respectively. The latter were historic military upsets in which victors combined one or more new technologies with innovative tactics, not only winning battles but also changing how such battles were fought.[36]

As the rate of technological change increases, so does business executive bandwidth devoted to horizon-scanning for threats and opportunities. The U.S. military and its adversaries are doing the same. But recognizing that technology will emerge is not the same as knowing which technologies will create what effects and how quickly.

In the business context, an *innovation* is simply a change in technology—any change in how inputs are transformed into outputs.[37] This applies to changes in

organizational methods and processes as well as changes in machines, materials, software, and so forth. But a leap-ahead technology, even if rooted in a novel approach, need not be disruptive. To be disruptive, it must change the *basis* of market competition in ways not suited to the dominant business models. For example, the compact disc was a leap-ahead improvement over the cassette tape. No firm in the music recording industry could have retained its market position without transitioning. But it did not change the commonly recognized dimensions of the product value—capacity, portability, and sound quality. It was firms already dominant in the industry, Sony and Philips, that introduced the technology and they remained secure.[38]

When a market-disrupting threat appeared, it came from an innovation that delivered slightly *worse* sound

quality—the MP3.[39] This made music so much more portable that new business models became possible.[40] Suddenly, a firm like Pandora could threaten the positions of firms established in the market for decades.

In protracted competition, an organization must evolve with the environment and respond quickly when the basis of competition changes. In their 2011 *HBR* article, "The CEO's Role in Business Model Reinvention," Vijay Govindarajan and Chris Trimble wrote that established firms rarely find "the next big thing" before new entrants, explaining "many companies become too focused on executing today's business model and forget that business models are perishable."[41]

But the challenge runs deeper. Even when firms can see change on the horizon, it is hard for an organization to maintain the edge in one game and

Installation of commercial Internet and phone packages at worldwide regional hub nodes, such as this one in Camp Roberts, California, enables Army and National Guard units to provide commercial services during emergency incidents anywhere on Earth (U.S. Army)

simultaneously position itself for another. When attributes that may or may not be valuable in the far term have limited utility in the near term, reasonable organizational processes constrain investment in them.[42]

This is why technologies that will eventually disrupt business markets are often not delivered by the firms already established within them.[43] In these cases, other firms introduce the technologies to different, sometimes niche, markets where their weaknesses matter less and their unique strengths matter more.[44] There, in the laboratory of real-world application, the technologies mature.[45] Once they reach performance thresholds necessary for them to be competitive in other market, they take the market by storm.[46] Development of U.S. naval aviation is as good an example as any from business.

In the 1920s, some theorists argued that aircraft could displace battleships in the market for destruction of enemy warships.[47] Aircraft of that era lacked the range, payload capacity, and mechanical reliability for this, but they found their way into a niche military application— aerial reconnaissance.[48] There and in civil applications the technology matured until it met performance thresholds that forced navies to redesign their warfighting models around not battleships, but aircraft carriers.[49]

The first strategic dilemma, mismatch, we can never escape; we can only manage it. But disruption is avoidable, and we do so by the following.

First, look for how new technology could enable new ways to win. Markets are not disrupted by new technology; they are disrupted by new business models. Henry Ford did not invent the

automobile, the assembly line, or interchangeable parts.[50] His company offered a value proposition—rapid and reliable personal transport—at a price point it could achieve with the cost structure those technologies allowed.[51] To be fair, Ford did improve those technologies. But consider Uber, whose founders did not improve the Internet, the smart phone, or data analytics. They simply built a business model from them.

From 1939 to 1940, the German military stunned the world by forcing the rapid collapse of massive, modern militaries with methods journalists of the time dubbed *blitzkrieg* (Lightening War). Enabling blitzkrieg were the tank, airplane, and two-way radio.[52] But these were not new technologies. All had been in use for over 20 years and had seen heavy employment on both sides of World War I. The German army may not

have deliberately conceived of a new way of war so much as stumbled into one, as maturing technologies unlocked latent potential in its doctrine and organizational culture. But whatever its genesis, the game changer was the warfighting model that emerged, not the technology.

Second, do not go big where you should go small. In 1992, Hewlett-Packard (HP) made a large investment in developing a leap-ahead disk drive technology—the Kitty Hawk—for an emerging market.[53] Demand appeared just as HP predicted, but customers' specific requirements were not what it expected. By the time it was evident that the Kitty Hawk, as designed, was ill-suited to the market that was actually emerging, Kitty Hawk's managers had neither the resources nor the credibility to reengineer it. The program folded.

There are parallels in the Army's Future Combat Systems (FCS) experience. In the 1990s, the Army recognized that it was investing mostly in incremental improvements to current technologies. To drive a leap ahead, it focused on opportunities and threats 15 or more years in the future.[54] One outcome was the FCS program. Aimed at a distant future and seeded with layers of technical risk, the program struggled. By 2009, with shifting priorities and too little to show for its $18 billion investment, the Department of Defense canceled the system.[55]

Christensen argues that purveyors of new technologies must conserve resources to survive early market failures so they can deploy their resources when the right investment becomes evident.[56] This is the business equivalent of the military principle of making contact with the smallest element possible. That is, when entering an area within which the enemy disposition is unknown, the commander holds back large units and advances small ones to develop understanding through contact with the enemy.

For HP, this would have meant producing different, perhaps less expensive variations of the Kitty Hawk to test in different markets. For the Army, this may have meant smaller investments in a large number of lower cost programs with fewer interdependencies. One may

recognize this as similar to a venture capital approach, but there is Cold War precedent for it.

In his book *Winning the Next War: Innovation and the Modern Military*, Harvard Professor Steven Rosen described how the U.S. military approached missile development from 1946 through the 1950s. Intercontinental bombardment was new and multiple means of it were conceivable.[57] The military could not know which would be most effective or what the Soviets would choose. Since missiles were expensive, the U.S. military hedged, deliberately making small investments in a portfolio of prototypes without fully fielding any.[58] In doing so, leaders were trading *early* capability for knowledge that would allow them to quickly create the *right* capability once it became evident, if not also to foresee it faster than the Soviets.

Finally, go big where you cannot go wrong. When allocating finite resources, investments that pay off in multiple futures are especially sound. For example, in 2011, GE decided to connect all of its manufacturing machines to an Industrial Internet of Things. GE reasoned that once it developed expertise in digital industrial manufacturing, it could build a business model around industrial analytic services.[59] The genius of GE's strategic decision was not in divining the future of the industry; it was investing in a capability that, coupled with its unique market position, would be a source of competitive advantage in almost any future. Investments in the application of technologies enabled by artificial intelligence to military problems may be an example.

Military strategy in protracted competition is, to a great degree, organizational strategy. We organize, train, and equip according to assumptions about what will matter most in future wars. It is good that we are examining and vigorously debating those assumptions. But guessing better than our adversaries is not enough because the winning long-term strategy may not be that which proceeds from the best assumptions. It may be that which most honestly acknowledges uncertainty about the future and then best accounts for it. **JFQ**

Notes

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