Chapter 7

Seeing the System

It was October but by late morning the heat was shimmering off the Baghdad pavement. A twenty-six-year-old intelligence analyst with a scruffy beard and a Columbia camping shirt squinted as he left the Task Force's screening facility. He was carrying seven pages of paper: the printout of a PowerPoint analysis he had assembled, and the brief biography of an Iraqi car dealer turned AQI operative.

Time was critical. The analyst had been tracking this target for several weeks, but he had only confirmed the man's role and identity the day before questioning. Signals intercepts indicated he had recently been active inside the capital. AQI was using lethal VBIEDs (vehicle-borne improvised explosive devices) to kill civilians in neighborhoods across the city—targeting this man was crucial to stopping the terror campaign.

In a bunker fifty yards from the screening facility, the analyst presented his conclusions to colleagues seated around a table in the Situational Awareness Room (SAR). Based on this analysis, the onetime car dealer became a priority. Our targeting machine digested this new intelligence and added him to the list of individuals we were tracking. The man in question did not know it, but his life had become much more dangerous.

Soon, analysts identified the man's dwelling and vehicle, as well as two associates with whom he spoke and met. Shortly after 9:00 p.m. on the fourth day, intelligence assets located him in a house in the Hurriya neighborhood. A Predator unmanned aerial vehicle was requested.

Intelligence surveillance and reconnaissance (ISR) assets were in high demand and the team using the Predator did not want to hand it over, but after a few tense conversations the vehicle was rotating in a gyre seventeen thousand feet above the target's house, providing constant real-time full-motion video of the site. The man had been *found*. The next stage of our F3EA assembly line—*fix*—clicked into gear as the intel analysts passed the case to their operational counterparts and began work on their next target.

Within minutes, an Army Special Forces assault team was assembled, briefed, and on the move. They traveled in a small convoy of South African–made armored vehicles designed for street warfare. These had been procured after the bitter experience of street combat in Mogadishu eleven years earlier.*

The operators were focused and calm. It was not their first rodeo, nor was it an exceptionally challenging operation. The men in the car had done this more or less every day throughout their deployment. The Predator's slowly rotating video feed streamed down to their vehicles, and as the operators watched they refined their plan to secure the immediate area around the house to prevent his escape, then enter the building. The basic outline was the same as ever: if he surrendered, he would be captured and interrogated; if he fought, he would die. The vehicles arrived on target. The AQI operative remained inside, oblivious. He had been *fixed*. Next came the *finish*.

At the objective, the streets were quiet. Once, Iraqis wandered at night to enjoy the cool evening air, but these days that was a rare sight. The operators posted vehicles at three corners and sent two of their number to a fourth. Dogs barked, as they always do, but the noise produced no discernible reaction from local residents. Cautiously, the operators approached a metal gate that controlled entry to the house's driveway and carport. They placed two expanding ladders against the courtyard wall. Soon, laser-aiming lights mounted on M4 carbines were darting around the courtyard, ready to engage any resistance.

The breach was not dramatic. There was no explosion or gunfire, just some muffled rattles as bolt cutters provided entry for operators who quickly followed, secured the courtyard, and approached the house. A few minutes later, the car-dealer-cum-aspiring-terrorist appeared in the doorway, flex-cuffed and blindfolded. He had been *finished*. Next came *exploitation*.

An operator accompanied by an interpreter led the man to one of the armored vehicles while a rapid search of his home gathered a computer, a phone, and some documents. In half an hour he was at the unit's base—a now run-down Saddam Hussein–era villa. The operators, like the analysts, had performed superbly. They had delivered the honed efficiency that had, over the years, earned them their reputation as the world's finest. The team now handed the detainee and materials over to interrogators and intelligence experts who would *analyze* the man and the data. Like the intel team before them, the operators now moved on to the next target passed to them by the Task Force's assembly line. Whether or not the car dealer yielded intelligence of value was no longer the soldiers' problem. For most, the intelligence side of the war was to them a black box. They saw themselves as shooters; anything that distracted them from their priorities of *fixing* and *finishing* was a waste. This was what the awesome machine had taught them to do. They prepared to strike a new target.

Meanwhile, screening and exploitation of the files found at the car dealer's house began: new grist for the awesome machine.

But … the car dealer's name was imprecisely recorded (a common occurrence among Westerners dealing with unfamiliar naming conventions), and though the intelligence gathered had the potential to identify follow-up AQI targets, by the time it had navigated the labyrinth of security clearances, and made its way back to our Task Force, four days had passed. The car dealer's network had vanished; when AQI operatives were captured, the network quickly ensured that everyone

connected to the target would disappear. Our information had become useless.

Our operation was a success at the level of each individual team, but it was also rife with opportunities left unrealized for our Task Force at large. This was the frustration of operating a command of teams where information wasn't clearly shared.

At its heart, F3EA was a rational, *reductionist* process. It took a complex set of tasks, broke them down, and distributed them to the specialized individuals or teams best suited to accomplish them.

When we started falling behind in the fight against AQI, we tried to do what we had always done, only better: meticulously construct schedules, increase our intelligence structure, add interrogators, analysts, and technicians by the score, and sharpen our focus. If we each did our tasks better than ever, we thought, our machine would be unstoppable.

"We came from a background where if you were losing, you just weren't trying hard enough," recalls a SEAL commander who operated in Baghdad, "so we started going all out—timing how long it took us from the moment we fixed a target to get out of our cots, get our gear on, load choppers."

F3EA got tighter, faster, and more focused. By August 2004 we were running eighteen raids a month—a higher pace than we had thought possible. But it wasn't enough. By focusing on the component parts rather than the overall process, we were missing the fundamental problem. Speeding up the individual elements of the system did nothing to eliminate the blinks between them that most stymied our efforts. There were geographical blinks and technological ones: the distance between Washington and Baghdad could slow decisions, and occasionally bandwidth problems obstructed the transfer of data. More often, though, the blinks were social. Cultural differences between the Task Force's different tribes got in the way of communicating.

Overcoming this would require completely rethinking the conventional organizational approach to distributing information.

THE "NEED TO KNOW" FALLACY

Any aficionado of action movies has heard the line "That's on a need-to-know basis, and you don't need to know," uttered by a broad-shouldered, square-jawed caricature of a Special Operations commando or serious-faced intelligence agent. Though we rarely use that phrase in real life, it is an accurate depiction of military and broader organizational sentiments about the value of information: given the overwhelming volume of, and myriad sensitivities around, information, the default is not to share.

As the different components of the F3EA process were executed, each team tended to view its role in splendid isolation. Their ability to specialize in their own domains *necessitated* ignorance of the process at large—for operators, time spent learning about the "black box" of intelligence was a distraction that took them away from their proper duties. But this limited definition of efficiency meant that they passed on information that was often less useful than it should have been, late, or lacking context.

Had each of our teams been an individual at BUD/S, he would have gotten booted in week one. They took pride in their *own* team's performance, like the prima donna slugger who touts his high batting average as his team consistently loses. Instinctively, the silos of our organization looked inward, where they could see metrics of success and failure.

The habit of constraining information derives in part from modern security concerns, but also from the inured preference for clearly defined, mechanistic processes—whether factory floors or corporate org charts—in which people need to know only their own piece of the puzzle to do their job. One of the oldest and most famous examples of specialization—and the compartmentalized ignorance that such

specialization encourages—can be found in Adam Smith's 1776 description of a pin factory in his classic work, *The Wealth of Nations*:

> *One man draws out the wire, another straights it, a third cuts it, a fourth points it, a fifth grinds it at the top for receiving the head; … the important business of making a pin is, in this manner, divided into about eighteen distinct operations … I have seen a small manufactory of this kind where ten men only were employed, and [those ten persons] could make among them upwards of forty-eight thousand pins in a day … But if they had all wrought separately and independently, and without any of them having been educated to this peculiar business, they certainly could not each of them have made twenty, perhaps not one pin in a day; that is, certainly, not the two hundred and fortieth, perhaps not the four thousand eight hundredth part of what they are at present capable of performing, in consequence of a proper division and combination of their different operations.*

The pin factory benefits from putting blinders on each individual worker, as have many operations since. A man moving pig iron did not need to know where that iron came from before it arrived at the factory, or what the man who received it after him did with it; the assembly line worker building his small portion of a ship did not need to understand how the final product came together. But come together it would, thanks to the aggregation of these discrete efforts, and the intricate designs of managers. Things, in comforting simplicity, were the sum of their parts. The economic success of reductionist efficiencies in the twentieth century inspired increasingly fundamentalist adherence to Smith's doctrine of specialization.

But as technology has grown more sophisticated and processes more dispersed, the way component parts of a process come together has become far less intuitive, and in many cases impossible for a cadre of managers to predict fully. In a pin factory, a holistic understanding of the product is self-evident: Making pins is simple, and a worker in Smith's manufactory could easily see how his labor interacted with that of his peers. Even if each worker performed only one task, he still understood, at least in some way, the entire pin-making process and could probably explain the tasks of his fellow workers. Such is no longer the case in many factories. As technology has grown more sophisticated and processes more dispersed, the way component parts

of a process come together has become far less intuitive. The man who fixes a valve on the landing gear of a passenger jet probably can't explain the details of the complete jet assembly.

Taylor saved money by firing the paper pulp chemist and replacing him with an uneducated laborer and a chart. Time and money spent learning the whole process would be time away from the job and money not spent on supplies. In the short run, this kind of education may not seem worth the opportunity cost.

In military, governmental, and corporate sectors, an increased concern for secrecy has caused further sequestering of information. We have secrets, and secrets need to be guarded. In the wrong hands, information may do great damage, as the recent Snowden and WikiLeaks scandals have shown. In the absence of a compelling reason to do otherwise, it makes sense to confine information by the borders of its relevance.

As growing volumes of data flood institutions divided into increasingly specialized departments, the systems for keeping information safe have become more and more complicated. More protocols have to be satisfied, more tests have to be conducted, more badges have to be swiped before information can be shared.

Over the decades, America's military and intelligence institutions have developed intricate matrices of clearances and silos to ensure that, as a Hollywood general might put it, people don't know what they don't need to know. In early 2003, when I served as the vice director for operations on the Pentagon's Joint Staff, the United States Central Command (CENTCOM)* initially *prohibited* the Pentagon staffs from viewing their internal Web site out of a (common) fear of giving "higher headquarters" visibility into unfinalized planning products. Such absurdities reflect the truth that most organizations are more concerned with how best to control information than how best to share it.

The problem is that the logic of "need to know" depends on the assumption that *somebody*—some manager or algorithm or bureaucracy—actually *knows* who does and does not need to know

which material. In order to say definitively that a SEAL ground force does not need awareness of a particular intelligence source, or that an intel analyst does not need to know precisely what happened on any given mission, the commander must be able to say with confidence that those pieces of knowledge have no bearing on what those teams are attempting to do, nor on the situations the analyst may encounter. Our experience showed us this was never the case. More than once in Iraq we were close to mounting capture/kill operations only to learn at the last hour that the targets were working undercover for another coalition entity. The organizational structures we had developed in the name of secrecy and efficiency actively prevented us from talking to each other and assembling a full picture.

Effective prediction—as we have discussed—has become increasingly difficult, and in many situations impossible. Continuing to function under the illusion that we can understand and foresee exactly what will be relevant to whom is hubris. It might feel safe, but it is the opposite. Functioning safely in an interdependent environment requires that every team possess a *holistic understanding* of the interaction between all the moving parts. Everyone has to see the system in its entirety for the plan to work.

A FABLE: THE FAILURE OF THE KRASNOVIAN SOCCER TEAM

Let's imagine that our fictional war game adversary, Krasnovia, liked the mechanical era too much to leave it. We can envision it as a country of Rube Goldberg–like contraptions engineered to do everything from getting people dressed in the morning to ironing their evening papers. The country's president (recently "elected" to his seventh term with 97 percent of the popular vote) does not believe in complexity. The economy is centrally planned, down to every family's daily food choices. Even the ecosystem is regulated: instead of exposing the state to the nonlinearity of evolution, government scientists laboring in concrete towers have devised schedules for breeding and then

releasing (neutered) animals into the wild—starlings in April, toads in September.

Like his president, the coach of the Krasnovian soccer team—Coach T—worships at the altar of determinism, and on graduating from the National Academy of Planning, he resolves to bring reductionist management to the world's greatest game. Coach T's players don't know one another's names. They've never even seen each other. The men train separately, in one-on-one sessions with their coach. In these daily meetings, Coach T has his players focus on honing their personal fitness and rehearsing their respective portions of the 712 plays that he has designed. Once a year, the team assembles to rehearse. For these occasions, Coach T has developed an ingenious, lightweight piece of headgear similar to the blinders worn by horses. The contraption is designed to minimize distraction. When wearing it, players see only their individual patch of grass. Many of them, raised from a young age in one of the dedicated soccer camps developed by Coach T for each individual position, have never seen the entire field.

The annual practice is a beautiful thing to watch. The players' physical condition is unrivaled. They execute their plays flawlessly. Their archrival, Atropia, is nowhere near as fit, fast, or disciplined, and every four years, when the teams meet in the qualifying rounds of the World Cup, Krasnovian hopes run high. Usually around minute five, however, something happens that diverges from any of Coach T's 712 plans. The Krasnovians continue to execute their immaculate choreography, but they are kicking at the air and passing to nobody. The Atropians, without a plan but with awareness of the entire field, run circles around them.

After each loss, Coach T goes back and devises another plan, and by the next match, he has a flawless solution to the expired Atropian plays.

Contemporary environments now present too many equivalent likelihoods for top-down Krasnovian planning. Errors like misrecording

a name could easily be corrected with some training and a memorandum, but that would do nothing to prevent the thousands of other tiny deviations, any one of which might also generate outsized impacts. Like the landing gear failure that ultimately doomed United 173, the root cause lay not in the lack of a specific procedure, but in the inability to correct in real time in response to unexpected inconsistencies. Task Force leadership was playing whack-a-mole: we could pick off problems as they arose, but we would never be able to predict and prescribe exactly what analysis would be relevant to specific operational teams, or what types of materials our operators should seek to help our analysts.

In situations of unpredictability, organizations need to improvise. And to do that, the players on the field need to understand the broader context. At the team level, this is self-evident. But at the broader institutional level, it is more difficult to engineer structures that are both coherent and improvisatory.

The problem, at one level, was obvious: we were failing to create useful bonds between one team and the next. The work done by our operators and analysts was inextricably linked, and yet we had placed the two groups in separate organizational silos—we had given them blinders—in the name of efficiency. Our players could only see the ball once it entered their immediate territory, by which time it would likely be too late to react. With no knowledge of the constantly shifting perspective of their teammates, they would have no idea what to do with the ball once they got it. They were playing Krasnovian soccer.

Though our Task Force had never found itself in this quandary before, neither the challenge, nor the eventual solution, was new.

“NEW METAL ALLOYS, SOME OF WHICH HAVE NOT YET BEEN INVENTED”

In September 1962 at Rice University, an enthusiastic President Kennedy, shining with sweat, delivered a now-famous speech. He pledged that the United States would send humans

> *240,000 miles away from the control station in Houston [in] a giant rocket, more than 300 feet tall … made of new metal alloys, some of which have not yet been invented, capable of standing heat and stresses several times more than have ever been experienced, fitted together with a precision better than the finest watch, carrying all the equipment needed for propulsion, guidance, control, communications, food and survival, on an uncharted mission to an unknown celestial body, and then return it safely to Earth, reentering the atmosphere at speeds of over 25,000 miles per hour, causing heat about half that of the temperature of the sun … and do all this, and do it right, and do it first, before this decade is out. We must be bold … as we set sail we ask God's blessing on the most hazardous and dangerous and greatest adventure on which man has ever embarked.*

Kennedy enumerated the obstacles—the distance, speed, and heat—not to dissuade, but to inspire. One can imagine the thrill that must have pulsed through the audience of budding engineers as their president pointed out that the metals necessary to achieve this feat *had not yet been invented*. Earlier in the speech Kennedy uttered the memorable statement "We do these things, not because they are easy, but because they are hard."

Less than seven years later, more than 600 million viewers around the world tuned in to watch Neil Armstrong set foot on lunar soil and proclaim "one giant leap for mankind" before planting an American flag on the moon. To the best of our knowledge, that flag, though toppled by the lander's liftoff blast and likely bleached white from decades of unfiltered sunlight, is still there. The ridged imprints from Armstrong's rubber soles—tiny, perfectly geometric mountain ranges—still stand, preserved in the windless stasis of our favorite celestial boulder. No matter what happens on frenzied Earth, the traces of *Apollo 11* should serve as a testament to human ingenuity for millions of years.

Almost as significant as what happened in space exploration in July 1969, however, is what did not happen. Two weeks before the *Apollo 11* launch, on the other side of the Atlantic, the F-8 rocket assembled by ELDO, the European Launcher Development Organisation, failed on the launch pad. It was ELDO's fifth consecutive total failure.

NASA and ELDO had similar ambitions and faced the same challenges. The success of one and the failure of the other had little to do with differences in expertise or resources, and much to do with how the organizations distributed information. NASA was, thanks to an approach known as “systems management,” a more effective organization. NASA administrators Robert Seamans and Frederick Ordway summarized the nature of their achievement as follows: “The Apollo project … is generally considered as one of the greatest technological endeavors in the history of mankind. But in order to achieve this, a managerial effort, no less prodigious than the technological one, was required.”

In the years leading up to Kennedy’s speech, the United States had lagged embarrassingly in the Space Race. The Soviet Union had produced the first Earth orbiter, the first animal in orbit, the first lunar flyby, the first lunar impact, and the first images of the far side of the moon. It would soon put Yuri Gagarin into orbit, the first man in space. In the meantime, the American space effort struggled.

NASA’s first unmanned test flight, Mercury-Redstone I, lifted off on November 21, 1960, but it did not lift very far: The launcher rose four inches off the ground, then settled back down. The escape rocket on the tip, designed to break free once it reached space, shot off and instantly opened the parachutes that were meant to help it land on reentry. It played atmospheric tug-of-war with itself for a few moments, burning fuel while its chute prevented any real ascent, then fell into the sea.

Postlaunch analysis blamed a communication issue between the Atlas rocket—originally configured to carry warheads—and its new satellite cargo. This caused a slight delay in shutoff signals for the engines of the various stages, launching the escape rocket too early. An almost identical issue of structural incompatibility between a Mercury capsule and an Atlas rocket had occurred a few months earlier. These “interface failures” were breakdowns, not of any given

component, but of the integration between them. They were the Space Race equivalent of our Task Force's "blinks," and they arose from a similar lack of information sharing.

Originally established as a research organization, NASA was a constellation of teams conducting largely independent work farmed out by administrators. This structure facilitated the innovation capacity of small groups, and many scientists felt comfortable performing experiments in the context of specialized departments akin to those in a university. The interface failures, however, exposed an inherent problem: independent small groups were very effective at exploratory work, but trouble erupted when the projects of the disparate teams had to be integrated into a vehicle going into orbit.

Without fluid integration, nothing would work. The massive forces and tremendous speeds involved in rocket travel led to unpredictable vibrations throughout the whole vehicle, creating systemic issues that transcended the individual fiefdoms of the teams developing the components, and the separate disciplines of the structural engineer, the propulsion expert, the electrical engineer, and other team members. There was also electromagnetic interference: never before had so much digital hardware been crammed so tightly into such a machine, and the signals from different computers often interfered with one another. And then there was gravity: on Earth, dust, fluids, and other contaminants fall to the bottom of vehicles, but in space these elements float freely; if a single floating metal particle happened to touch two adjacent wires simultaneously, a short circuit could cause a system-wide failure. The rocket's computers, body, and electrical systems might have worked perfectly in isolation, but under the interdependent stressors of space travel, they broke down.

Given these failures, in 1962 NASA leadership had doubts about the feasibility of Kennedy's goal. "Most of us in the Space Task Group thought [Kennedy] was daft," recalled a NASA executive. "I mean, we didn't think we could do it. We didn't refuse to accept the challenge, but

God, we didn't know how to do [Earth] orbit determination, much less project orbits to the Moon."

Scientists would have to rethink the basic assumptions of engineering. "How do you get liquid out of a tank at zero-G?" one engineer observed. "Everybody said, 'oh, what's so hard about that? You just pressurize it.' Pressurize it, my ass. The pressure exerts on everything, and the damn liquid is just floating around. It's liable to be in globs someplace in the tank, and you don't even know where it is in the tank."*

No one knew whether the lunar surface would be able to support the weight of humans, let alone a spacecraft. They did not know how much radiation would be encountered on the voyage between Earth and the moon, which had the potential to render the entire project moot. Fuel cell technology, which would become a staple of space travel, had not been heard of in 1960. And these were just the building blocks.

This kind of fundamental invention and discovery is usually tackled by small teams, and only later expanded at scale: think of the Wright brothers or Gottlieb Daimler and his partner Wilhelm Maybach or Alexander Graham Bell and Thomas Watson. But NASA did not have the luxury of starting small. It had to develop and perfect all of these individual technologies simultaneously. Like our Task Force in 2004, and so many other organizations struggling to keep pace today, NASA found itself thrust into a complex environment, and would have to find a way to exploit the innovative abilities of a small team at the scale of a large organization.

To put a man on the moon, the Apollo program would eventually employ 300,000 individuals working for 20,000 contractors and 200 universities in 80 countries, at a cost of $19 billion. The old management model was not built to integrate discovery and development at this scale. As Stephen B. Johnson writes in *The Secret of Apollo*, "The switch from research to development required strict attention to thousands of details. Properly building and integrating thousands of components was not an academic problem but an

organizational issue." NASA would have to link its teams together by disregarding the "need to know" paradigm and widely broadcasting information.

In 1963, NASA brought in George Mueller to build the managerial foundation of the Apollo program, and he brought a sea of organizational change. His vision for NASA was that of a single interconnected mind—an emergent intelligence like the "joint cognition" that defines extraordinary teams. As NASA director Wernher von Braun framed it, Mueller brought the perspective of an electrical engineer who aspired to create a managerial "nervous system," whereas von Braun, a mechanical engineer, saw organizations as reductionist contraptions.

Mueller threw out the old org charts and required managers and engineers, who were used to operating in the confines of their own silos, to communicate daily with their functional counterparts at other field centers and on other teams. Gone were the tidy, MECE-like organizational divisions. As described by Stephen Johnson, this "wreaked havoc at NASA headquarters … [it] converted NASA engineers who monitored specific hardware projects into executive managers responsible for policy, administration, and finance. For several months after the change, headquarters was in turmoil as the staff learned to become executives." People complained about the "almost iron-like discipline of organizational communication." Gone were the days when they could attack their own problems in isolation. Von Braun and other senior administrators protested.

Previously NASA headquarters would collect data from field centers each month and have a handful of managers check for inconsistencies. Mueller insisted on daily analyses and quick data exchange. All data were on display in a central control room that had links with automated displays to Apollo field centers. These rooms buzzed with activity, constantly receiving updates from contractors and teams and in turn providing information to them. It was the Internet before the Internet: information was updated and shared widely and instantly. As the utility

of this information became evident, more and more engineers who were initially opposed started to come around.

Administrators built a "teleservices network" to connect project control rooms with hard copy and computer data and provide the ability to hold teleconferences involving the various laboratories, manufacturing centers, and test sites. NASA engineering talent was temporarily redirected from building rockets to designing an enormous set of radio "loops" that allowed teams to communicate with one another fluidly. "I think we had 250 channels [on which people could talk] in Complex 39," one official at the Kennedy Space Center recalled. "You could tune into North American 2, and you'd be listening to the guys working the engine. If there was a problem there, you could hear how they were handling the problem." At launch time, every team was put on the same loop. "You got instantaneous communication up and down," the official marveled. "[It was] probably one of the biggest loops ever put together … instantaneous communication, instantaneous transmission of knowledge."

NASA's approach to outside contractors also changed. NASA had always preferred doing things "in house"—the complex interaction of parts meant that subcomponents farmed out to contractors not privy to the full context were likely to create problems when integrated. Von Braun observed, "You cannot simply write a contract on a stage of the Saturn V and let the contractors go." Often NASA employees would take apart and rebuild everything contractors sent them. But to get a man to the moon, NASA needed expertise and capacity beyond that offered by its own staff.

The solution was to bring contractors in-house. In place of a maze of silos and protocols legislating who could know what, von Braun created two states: in and out. Those who were in had to embrace and understand the Apollo project in its entirety. Specialists continued to do specialized work, but they needed an understanding of the project as a whole, even if establishing that understanding took time away from other duties and was, in some ways, "inefficient." NASA leadership

understood that, when creating an interactive product, confining specialists to a silo was stupid: high-level success depended on low-level inefficiencies.

An administrator recounted the collaboration with one contractor: "The reason that it [eventually] worked and that we got it ready on schedule was because we had everybody in that room that we needed to make a decision … It got to a point where we could identify a problem in the morning and by the close of business we could solve it, get the money allocated, get the decisions made, and get things working."

What Mueller instituted was known as "systems engineering" or "systems management," an approach built on the foundation of "systems thinking." This approach, contrary to reductionism, believes that one cannot understand a *part* of a system without having at least a rudimentary understanding of the whole. It was the organizational manifestation of this insight that imbued NASA with the adaptive, emergent intelligence it needed to put a man on the moon.

In the two years after Mueller was brought on, Apollo transformed from a group of loosely organized research teams into a tightly run development organization. Even the engineers most ardently opposed to systems management found that many technical problems could be solved only by sharing information. As von Braun put it, "The real mechanism that makes [NASA] 'tick,' is … a continuous cross-feed between the right and left side of the house." In half a decade, a space program that had once been a national embarrassment became the best in the world.

LAUNCH TOWER OF BABEL

On the other side of the ocean, ELDO had also started out with similarly grand aspirations. Established soon after the European Coal and Steel Community—the predecessor of the EU—it represented unity between countries that had nearly destroyed one another twice in fifty years. The initiative would encourage cooperation between nations, and Western European businesses, governments, and militaries would all gain

technical expertise and credibility if the mission succeeded and put objects in orbit.

In 1961 European technology and expertise were on par with those of the United States. The Germans had been the first to develop military rockets; the United Kingdom had a successful program of developing air-to-surface, surface-to-air, air-to-air, and ship-to-air weapons; Italy, France, Belgium, and the Netherlands also brought significant resources to bear. But ELDO teams worked independently, users and manufacturers communicated rarely, and each nation assumed control of a different stage of the rocket: the United Kingdom produced the booster, France the second stage, Germany the third, while Italy made the satellite test vehicle. There was no single location for project documentation, no system for providing access to other groups' documentation, and no specifications for what documentation each entity should produce. Each country managed its part through its own national organization, and each sought to maximize its own economic advantages, which often meant withholding information. Contractors reported only to their national governments. In 1968, NASA's international programs chief described the ELDO members' "half-hearted and mutually-suspicious character of participation." This competitiveness might have been a boon to a less interdependent endeavor, but it was problematic for something as linked and complex as spaceflight.

ELDO's first launch failed because it used the wrong kind of bolts to connect the French and German stages. The next collapsed because of differences between connecting rings used by the Germans and Italians. The next attempt, in August 1967, made headway when the second stage successfully separated, but once free of the booster, it did not fire. An electrical ground fault had de-energized a relay in the first stage when the rocket was sitting on the launch pad, and this led to a failure of the second-stage sequencer. Four months later, another electrical interface issue brought down the next launch. In July 1969—a few weeks prior to the American moon launch—an interface error

ignited a rocket's self-destruct system while it sat on the launch pad. ELDO's final launch attempt, in November 1971, blew up ninety seconds into flight. The organization was dissolved three years later.

Internal and external analyses later concluded that all these problems stemmed from shortfalls of organizational communication—devastating "interface failures," or blinks. In his 1964 book *The American Challenge,* French journalist Jean-Jacques Servan-Schreiber argued that Europe's lag behind the United States in the Space Race was not a question of money but of "*methods of organization* above all … this is not a matter of 'brain power' in the traditional sense of the term, but of organization, education, and training." On the other side of the pond, Secretary of Defense Robert McNamara concurred that Europe suffered from a managerial deficit: "The technological gap was misnamed." It was a space age Tower of Babel: the countries' inability to speak to one another obstructed their joint effort to reach the heavens.

Like Taylor's world's fair exhibition in Paris, the success of *Apollo 11* and the concurrent shambles of *Europa I* shone a spotlight on the role of management in large-scale endeavors. Congress held hearings to study NASA's managerial secrets. The systems management put in place at NASA became a core process of aerospace research and development, essential to everything from the International Space Station to the Boeing 777.

NASA's success illustrated a number of profound organizational insights. Most important, it showed that in a domain characterized by interdependence and unknowns, contextual understanding is key; whatever efficiency is gained through silos is outweighed by the costs of "interface failures." It also proved that the cognitive "oneness"—the emergent intelligence—that we have studied in small teams *can* be achieved in larger organizations, if such organizations are willing to commit to the disciplined, deliberate sharing of information. This runs counter to the standard "need-to-know" mind-set.

NASA, at the vanguard of new technologies, was confronting complexity ahead of its time. A half century later, almost every organizational actor has become ensnared in the wayward swirl of complexity.

Some of NASA's innovations sound incredibly simple: take off the blinders and have people talk to each other. The basic concept requires only the *un*learning of fundamentalist approaches to efficiency, but the implementation requires constant maintenance: making sure that everyone has constantly updated, holistic awareness became a full-time job for many, and required commitment and time from everyone.

In fact, even for NASA, as historian Howard McCurdy has noted, "maintaining … organizational culture as practiced by the first generation of employees turned out to be most difficult to do." After Apollo, its well-integrated system of units slid into a competitive set of independent entities; its open communications calcified with bureaucracy. One employee characterized NASA in 1988 as "the Post Office and the IRS gone to space." The investigation after the *Challenger* disaster had especially harsh words for NASA's organizational practices, but the subsequent, efficiency-focused program ushered in during the 1990s, called "Faster, Better, Cheaper" (FBC), took NASA further down the path of carelessness, reducing the "inefficient" ties that had defined the Apollo approach. One famous interface failure occurred when a communication gap between two working groups resulted in the loss of the $125 million *Mars Climate Orbiter*: one system was built for metric measurements, one for imperial measurements. As McCurdy notes, FBC was the antithesis of systems engineering. Systems engineering was "formal, elaborate and expensive." It was inefficient. But it worked.

SETS AND SYSTEMS

Systems thinking has been used to understand everything from the functioning of a city to the internal dynamics of a skin cell, and plays a

key role in deciphering interdependence.

Consider a doctor and her education. Doctors come in many varieties—pediatricians, ENTs, radiologists, etc.—yet while in medical school, all undergo the same rigorous overview of the way the human body works. It doesn't matter if, as a hand surgeon, you spend the rest of your life looking only at palms, wrists, and fingers. Because the human body is not a *set* of *independent* elements, but a *system* of *interdependent* elements, you need to understand how the metabolism of sugar works in order to understand how diabetes can cause the death of tissue in fingers, just as you need to understand how repeated pressure on the median nerve can lead to carpal tunnel syndrome. When we go under the knife, we want to know that the person holding it has a holistic understanding of the fundamentals of the body, not simply a Tayloresque instruction card.

A checklist is inadequate for surgery because of the quintillions of possibilities that interdependence generates. We would never call the rigors of medical school "easy," but it is more feasible to spend seven years learning about the complex cause-and-effect relationships in the human body than to attempt to record and memorize every possible event that can befall bodies.

This is the difference between "education" and "training." Medical school is education, first aid is training. Education requires fundamental understanding, which can be used to grasp and respond to a nearly infinite variety of threats; training involves singular actions, which are useful only against anticipated challenges. Education is resilient, training is robust.

Coleman Ruiz talks about BUD/S "taking individual performance out of the lexicon on day one." This emphasis on *group success* spurs cooperation, and fosters trust and purpose. But people cooperate only if they can *see* the interdependent reality of their environment. Trainees learn to work together during BUD/S "surf passage" only because they

can see that one individual's failure will result in a flipped boat, and if that happens, the whole group will suffer.

In our Task Force, our specialized units had little insight into how their peer teams functioned, or how all the pieces fit together. Everyone knew the boat kept flipping, but without a clear view of what everyone else was doing, nobody could see why or how to change it.

Like NASA, we needed to promote at the organizational level the kind of knowledge pool that arises within small teams. This was the key to creating a "team of teams."

We did not want all the teams to become generalists—SEALs are better at what they do than intel analysts would be and vice versa. Diverse specialized abilities are essential. We wanted to fuse generalized *awareness* with specialized *expertise*. Our entire force needed to share a fundamental, holistic understanding of the operating environment and of our own organization, and we also needed to preserve each team's distinct skill sets. We dubbed this goal—this state of emergent, adaptive organizational intelligence—*shared consciousness*, and it became the cornerstone of our transformation.

RECAP

- Like NASA before it, our Task Force found itself confronted with a *complex problem that demanded a systems approach to its solution; because of the interdependence of the operating environment, both organizations would need members to understand the entire, interconnected system, not just individual MECE boxes on the org chart*.
- Harnessing the capability of the entire geographically dispersed organization meant *information sharing had to achieve levels of transparency entirely new* to both organizations.

- In traditional organizations, this constitutes culture change that does not come easily. It *demanded a disciplined effort to create shared consciousness*.

Chapter 8

Brains Out of the Footlocker

In July 2004, shortly before the El Amel sewage plant bombing, we had left the battered buildings at Baghdad International Airport, and moved our new headquarters to Balad Airbase, sixty-four miles north of the capital. Twenty years earlier, Soviet-built MiG-21s had screeched on and off Balad's tarmac to strafe Iranian troops during the bitter Iran-Iraq War. Later, those same aircraft postured as a threat to General Norman Schwarzkopf's "Hail Mary" juggernaut into southern Iraq in 1991. Now it was the roar of American jet engines that reverberated off the concrete.

The base lay near the lush Tigris River, but in the July heat its grounds were stark brown. Two runways sliced across the center, flanked on one side by administrative and maintenance buildings, and on the other by a smattering of decrepit concrete shelters. The Task Force occupied a special high-security compound abutting aircraft taxiways that gave us easy access to planes and helicopters. The compound consisted of prefab trailers, plywood huts, and a hodgepodge of tents clustered in close proximity. Living quarters, workspaces, equipment maintenance, and the mess hall were all nearby. My "commute" to work was an efficient forty-foot walk.

We were given three aging bunkers on the west side of the base, nicknamed "Yugos" after the Yugoslavian contractors who had built the hardened hangars to protect Iraqi combat aircraft. Medicine ball–size holes punched through the roofs testified to their failure against the precision weaponry of coalition aircraft during the 2003 invasion. The

bunkers were the size of large circus tents, constructed of two thick layers of concrete separated by about a foot of sand. Long, low, arched garage door openings spanned each end. They were beige like the sandstone buildings around the compound, and the desert around them. Inside, sound reverberated harshly off the concrete. Our Task Force picked one as our headquarters and moved in.

Although the acres of Iraqi equipment destroyed in the invasion and an eternally smoldering garbage dump presented a depressing picture, for us Balad was a beautiful opportunity: a place to build something entirely new, the physical manifestation of the organizational system that might tilt the odds in our favor. One of my father's favorite admonitions, applied playfully when I did something dumb, was borrowed from an old sergeant: "Put your brains in your footlocker, I'll do the thinking around here." Our imperative was the opposite: at Balad we meant to get all the brains out of all the footlockers and working together.

We had analyzed the problem and we knew what needed to change. To become effective against AQI, we would have to dismantle our deeply rooted system of secrecy, clearances, and interforce rivalries, and in its place establish an environment of such transparency that every man and woman in our command understood his or her role within the complex system that represented *all* of our undertakings. Everyone needed to be intimately familiar with every branch of the organization, and personally invested in the outcome. This ran against the grain of the distinct specializations that we had spent the last century developing. Our hope was that—as with BUD/S, CRM, and NASA—sharing information would help build relationships and the two together would kindle a new, coherent, adaptive entity that could win the fight.

It was an enormous and risky experiment. At Balad, we set about building the lab.

Traditionally, the physical layout of military installations mirrored and supported reductionist efficiency. The Pentagon's unusual shape was originally chosen to fit into a specific piece of land below Arlington Cemetery, and though the project was relocated (to avoid desecrating Pierre L'Enfant's grand plan for America's capital) the five-sided design was maintained; it is supposedly possible to move between any two locations in the building in less than seven minutes. Today its seventeen and one-half miles of corridors still follow a logical and quickly grasped pattern, but thousands of doors on those corridors are now "access protected"—a euphemism for locked. Even if your clearance level gains you entry, you may find yourself in a further submaze of locked inner doors and access points. Offices are separate and sterile, and despite being in the same building as twenty-eight thousand others, people work largely in small, discrete groups—or alone. Built at the start of World War II to pull the military services, previously spread across separate office buildings in Washington, D.C., into cooperative proximity, the building has seen its original intent eroded. It is now a building in which individuals toil independently in accordance with top-down, need-to-know reductionist planning. They might as well be spread around the globe.

At our U.S. headquarters at Fort Bragg, a similar physical paradigm prevailed for the first twenty years of the organization's history. Built in the early 1980s with an emphasis on security, the windowless buildings were divided into hallways of small offices further segmented by cubicles. Few common areas existed to foster social interaction, and strict limitations on outside visitors further separated the Task Force from other organizations on the sprawling installation at Fort Bragg.

In the private sector also, physical space has for a century been used to facilitate and enforce efficiency and specialization. Along with factory assembly lines, the architectural frames of white-collar work have evolved to maximize efficiency. In the nineteenth century, "countinghouses" where partners and clerks worked side by side at

identical rolltop desks began to disappear, replaced by subdivided offices. As the volume of clerical and administrative work grew, white-collar professions began importing the reductionist ideal of specialization from the factory floor. Management historian Alfred Chandler observed that the role of the merchant, which once embraced "exporter, wholesaler, importer, retailer, shipowner, banker and insurer," split—like Adam Smith's pin production—into multiple specialized businesses in the late 1800s.

Years later, in what Chandler referred to as "the Managerial Revolution," the specialized businesses were reunited when they merged into large, vertically integrated corporations with dozens of departments and hundreds of offices. Many functions were consolidated under centrally managed entities, instead of the sea of small actors responding independently to the forces of the market (Chandler dubbed this force "the visible hand" in contrast to Adam Smith's description of market forces as "the invisible hand"). The number of people working in "professional services" rose from 750,000 in 1860 to 2.16 million in 1890, and to 4.42 million by 1910, but the number of firms that employed them dropped: 4,000 firms collapsed into 257 combinations between 1897 and 1904. But consolidation did not signal a return to the shared space and understanding of countinghouse culture. Instead, companies went to greater lengths to preserve stratification.

New technologies enabled the construction of larger, taller buildings to house the increasingly complicated strata of the workplace. The "office building" took shape under the hand of architects such as Louis Sullivan, who envisioned structures composed of independent, standardized cells, which he likened to the hexagonal building blocks of beehives: discrete, MECE units, not to be merged.* Dictaphones and pneumatic tubes enabled discrete, directed communications at a distance without the messy inefficiencies of the countinghouse. Executives moved to separate rooms, then to plush suites, and finally to different floors to separate them from the "pools" of stenographers

toiling away at desks arranged in grids, silent but for the clacking of typewriter keys. The “corner office” where a manager could separate himself from the rest of the workforce became a status symbol. (During the 2008 financial crisis it emerged that many executives commute to their offices in private elevators, further minimizing any potential interaction with employees.) It was in the early 1900s that the term “ladder” became common parlance for the corporate hierarchy.

These buildings—the forebears of the Pentagon and the glass slabs that make up today’s urban skylines—were designed for the efficient flow of paperwork. This flow was often quite literally an assembly line. As a clerical worker explained in 1958,

> *The girl at the end … opens and sorts mail. The next girl is our doer. She does whatever the mail calls for—a cancellation, a receipt or whatnot. Then I check the papers she hands me, and add whatever notations are necessary before I pass them along for copying to the first girl on my left, our team’s typist. She, in turn, gives the whole batch to the last girl, our assembler, who puts the papers together in proper order and forwards them, maybe to another department, or to central filing, or possibly back to a policyholder.*

The goal, as in factories, was for processes designed by management to be executed in as efficient and specialized a way as possible. Management theorist R. H. Goodell noticed how visitors passing in a corridor distracted clerical workers. By turning their desks away from the door and facing them toward a blank wall, he could reduce disruption and at the same time play on the uneasy feeling that, at any given moment, their supervisor might be looking over their shoulders—both increased productivity.

How we organize physical space says a lot about how we think people behave; but how people behave is often a by-product of how we set up physical space. At Balad we needed a space that facilitated not the orderly, machinelike flow of paperwork, but the erratic, networked flow of ideas—an architecture designed not for separation, but for the merging of worlds. We weren’t the only ones to be trying this—there

was a growing movement in the private sector to organize offices for better cooperation, too.

Firms that value innovation and creativity have spent a lot of time searching for ways to inject interactivity into work environments. In 1941 Bell Labs famously broke with tradition, hiring Skidmore, Owings & Merrill to design a campus whose spaces promoted interaction: to move from an office to a lab, for example, employees had to walk through the cafeteria where they would bump into people. The hope was that such casual interactions with peers, managers, and even custodial staff might prompt unexpected insights. In the 1970s even staid IBM experimented with early "nonterritorial" offices where engineers could come in, grab their materials, and sit anywhere in the open plan space arranged to facilitate "serendipitous encounters" with team members. As with NASA, these changes were not initially welcomed, but grew in popularity. "I was skeptical before, but I'd hate to go back to a closed office now," said one engineer. Another was more succinct: "Don't fence me in again." In Silicon Valley, Google, Facebook, and other titans, as well as countless start-ups, use open plans that put different teams and different rungs of management in the same space.

When former mayor Michael Bloomberg moved into New York's City Hall, he turned down the building's fancy mayoral suites, and instead had the Board of Estimate Hearing Room—one of the most lavish ceremonial spaces in the historic landmark—converted into a "bullpen."* He filled the space with hundreds of cubicles—including one for himself—to maximize the cross-pollination of ideas. He had test-driven this model at Bloomberg LP, the financial and media conglomerate that made him a billionaire.

Bloomberg says, "I've always believed that management's ability to influence work habits through edict is limited. Ordering something gets it done, perhaps. When you turn your back, though, employees tend to regress to the same old ways. Physical plant, however, has a much

more lasting impact … I issue proclamations telling everyone to work together, but it's the lack of walls that really makes them do it."

Bloomberg's hierarchy-flattening, silo-merging bullpen, his sociable workplace bagel bars, and his zero tolerance policy for executive dining rooms or reserved parking spots were inspired in part by his first employer, the investment bank Salomon Brothers: "Anyone could come up to [the CEO's] desk, anytime. He was on a first-name basis with as many people at the bottom of the corporate ladder as at the top."

This is not just about symbolic egalitarianism. The cultivated chaos of the open office encourages interaction between employees distant from one another on the org chart. Putting himself in the middle of it kept Bloomberg's finger on the pulse of the organization. "If you lock yourself in your office, I don't think you can be a good executive," he says. "It makes absolutely no sense to me." If his own mayoral career has been any measure, he is right: according to Bill Keller, the Pulitzer Prize–winning *New York Times* correspondent, "The great urban contraption that is New York City government has probably never been so well run."

The appreciation for serendipitous encounters embodied by Bloomberg's bullpen and Silicon Valley's open plans is a way of saying, "We don't know what connections and conversations will prove valuable."

At Balad, we attempted something similar: engineers gutted the inside of the main bunker. We burned the decrepit mess of debris, old partitions, and Soviet-era war matériel that had filled it, and we erected an open plan plywood endoskeleton. We ran all of our operations out of the Joint Operations Center (JOC)—an expansive central space similar to Bloomberg's bullpen.

A wall of screens at the front of the space showed live updates of ongoing operations: video feeds of small skirmishes or ongoing raids, JOC log entries recording the outcomes of successful captures or "friendly" casualties, maps of our gains and losses in different regions

of the country. Immediately in front of the screens, we arranged portable tables in a large U-shaped configuration where the Task Force commander and key leaders all sat, able to see and communicate with one another easily as they worked. Radiating outward were banks of long tables and chairs for the myriad functions of intelligence, air and artillery support, medical evacuation, liaison officers, and all the other capabilities germane to our operations.

Anyone in the room—regardless of their position in the org charts' silos and tiers—could glance up at the screens and know instantly about major factors affecting our mission at that moment. Personnel were placed strategically throughout the space, depending on their function—those with access to real-time information critical to ongoing operations were closer to the center of the room, those with a longer-term focus were on the fringes, so they could focus on other work. Any of them, however, could walk freely across the room for quick face-to-face coordination. With the touch of a button on the microphone, everyone's attention could be captured simultaneously.

We hoped the new architecture would elicit the emergent intelligence we believed resided in the force as a whole and give our teams a comprehensive view of the entire system. It was not enough to know just their own part (or that of one person they bumped into in the cafeteria).

In 2004 we had sixty or so people sitting in the space—intelligence analysts, operations officers, military liaisons, intelligence surveillance and reconnaissance (ISR) operators, airpower controllers, DOD lawyers, and medical staff. To eliminate one potential excuse for not collaborating, we designated the entire area a top secret security space. Almost any document or conversation relevant to our operations, many of them very sensitive,* could be discussed and debated on the open floor. It was an unprecedented move.

I had a small private office, but rarely used it. Instead, I worked from a space adjacent to the JOC, which we called the Situational

Awareness Room (SAR), at the head of another U-shaped table. In this smaller replica of the JOC, I would work alongside my key staff (e.g., intelligence, operations, legal), and with the senior representatives in our force from multiple interagency organizations. In the JOC, the focus was Iraq. In the SAR, it was global. Here we created the network to overlay Al Qaeda's international network. My intelligence director, operations director, and senior enlisted adviser sat beside me and could see and hear everything I did.

LEARNING FROM THE CUBICLE'S FAILED REVOLUTION

Our new physical plant provided structure for our transformation, but we knew it was not enough. A new layout with an old culture can deliver the worst of both worlds: countless managers, eager to adopt the new trend that promises innovation but reluctant to abandon the org chart, have done away with cubicles only to produce a noisier, more distracting environment that is neither efficient nor effective.

The cubicle itself is a good example of management space gone wrong. Originally created by the visionary inventor Robert Propst to free workers from isolation, the cubicle has become a symbol of the impersonal culture it aimed to reform. The "Action Office II" was supposed to be customizable and reconfigurable for privacy, but also for cooperation, promoting interaction. It was designed to be arranged in organic clusters, reflecting a new conception of the office as an interconnected whole.

Put into production by Herman Miller in 1967, Propst's invention was immediately perceived as transformative. The *New York Post* ran an article about it titled "Revolution Hits the Office," which argued that the days of "the completely enclosed 'boxes' in which the bosses isolate themselves behind monster mahogany status symbols and the inhuman row upon rigid row of steel desks with their clumsy drawers at which you sit all day" would soon draw to a close. "The success of the concept seems assured," the article concluded.

Anyone who has set foot in a corporate office in the past thirty years can attest that the product was indeed successful, but the concept of an organic workplace defined by freedom and intellect was not. Instead, managers discovered that they could use the Action Office to squeeze more people into smaller spaces, using the same unforgiving grid that steno pools had featured since the turn of the century. The cubicle's very adaptability allowed it to become, in the rueful words of one Herman Miller employee, "the inevitable expression of a concept which views people as links in a corporate system for handling paper, or as input-output organisms whose 'efficiency' has been a matter of nervous concern the past half-century … the [Action Office] is admirable for planners looking for ways of cramming a maximum number of bodies."

Today, a staggering 93 percent of those who work in cubicles say that they would prefer a different workspace. As Propst put it two years before his death, reflecting on his greatest legacy, "The dark side of this is that not all organizations are intelligent and progressive. Lots are run by crass people who can take the same equipment and create hellholes. They make little bitty cubicles and stuff people in them. Barren, rat-hole places … I never had any illusions that this is a perfect world."

The structure and symbolism of the Task Force's new nonhierarchical space was critical, but our organization would not be reborn by just moving furniture around. We needed to renovate our organizational culture as well.

Cultures, however, are more resistant to designed change than bricks and mortar. Shared consciousness demanded the adoption of extreme transparency throughout our force and with our partner forces. This was not "transparency" in the sense that it is usually used in the business world, a synonym for personal candidness. We needed transparency that provided every team with an unobstructed, constantly up-to-date view of the rest of the organization. It is the type of

transparency that those of us raised in the comfort of bureaucratic silos find uncomfortable. But it would be absolutely critical to our ability to coalesce and succeed as a team of teams.

Some pieces were simple: my command team and I added people to the "cc" line of e-mails whenever it seemed that even the second- or third-order consequence of the operation discussed *might* impact them. We had to acknowledge that we often could not predict who would and would not benefit from access to certain information. We took almost all phone calls on speakerphone—that included me, the commander in charge of our nation's most sensitive forces. This could make people uncomfortable, sometimes intensely so. But never once in Iraq did I see it hurt us nearly as much as it helped. We were trying to normalize sharing among people used to the opposite. Our standing guidance was "Share information until you're afraid it's illegal."

THE O&I

The most critical element of our transformation—the heart muscle of the organism we sought to create and the pulse by which it would live or die—was our Operations and Intelligence brief. The O&I, as it was commonly called, is standard military practice: a regular meeting held by the leadership of a given command to integrate everything the command is doing with everything it knows.

When I assumed command in 2003, the O&I was a relatively small video teleconference between our rear headquarters at Fort Bragg, a few D.C. offices, and our biggest bases in Iraq and Afghanistan. Quickly, though, that audience grew. We urged everyone from regional embassies to FBI field offices to install secure communications so that they could participate in our discussions.

When people think of cutting-edge military hardware, they usually picture weaponry, not a bulked-up version of Skype, but that was our main technological hurdle and point of investment for several months. We knew that forging the neural network that would facilitate our emergent analysis of complex problems was vital for our long-term

success, so we designed prepackaged communication bundles that our teams could take into the field, wherever they were in the world. Like NASA, we invested in bandwidth to enable us to reach every component of our force and our partners, from austere bases near the Syrian border to CIA headquarters at Langley, Virginia. Satellite dishes, from small to huge, connected the force. Secure video teleconferences, chat rooms, a Web portal, and e-mail became key arteries of our circulatory system. Technically it was complex, financially it was expensive, but we were trying to build a culture of sharing: any member of the Task Force, and any of the partners we invited, could eventually dial in to the O&I securely from their laptops and listen through their headphones.

As the scope of the Task Force's global activities increased and we integrated more players into our network, the O&I became a bona fide institution. The meeting ran six days a week and was *never* canceled. We conducted it by video teleconference at 9:00 a.m. Eastern Standard Time. This made it a convenient start to the workday for the Washington-based departments and agencies we were trying to integrate ever more tightly into our operations. In Iraq, the meeting kicked off at 4:00 p.m., giving operators time to rise in the late morning, train, prepare, participate in the O&I, and then get ready for the raids and fights that would take them from dusk until dawn. That synchronized cycle—what we called our "battle rhythm"—was fueled by the O&I, which pumped information and context throughout our Task Force.

There were real risks in doing this. Opening a top secret video teleconference to a wide community exposed us to potential leaks—after all, the information we were discussing was secret for a reason. Also, broadcasting unfiltered accounts of our successes and failures risked misinterpretation of complex, in-process endeavors or statements being taken out of context. But I had no interest in, and we had no time for, painting a rosy picture of what was in reality a hellish scene. Anyone who wanted to beat us at a game of bureaucratic

politics would have all the ammunition they needed, but that wasn't the fight we were focused on.

PUSHBACK

When we set up our new SAR at Balad, we put extra seats at the horseshoe table for the partner agencies that we hoped would come to augment our Task Force. In the early days, only the CIA liaison's seat was occupied. Intuitively, we knew that if we could generate enough success on the battlefield, others would want to participate. The problem was how to get their participation up front. We needed to bind everybody into a single enterprise, but we had no explicit authority to do so.

This was true even for the military forces that made up the operational arm of the Task Force. Throughout its history, the Task Force commander has led operators from each of the various branches of the armed services, but each of these subunits also had administrative commanders within their own branch of service. The Task Force commander, for example, did not oversee the selection of personnel, training, or maintenance of the Ranger regiment. That was the regimental commander's job, and in executing it he was answerable up a distinctly different chain of command to Army Special Operations Command and the Department of the Army. It is an awkward system. I would joke that commanding the Task Force is a bit like being a Formula 1 driver: you get to drive an incredible car, but you don't own it, and you don't pay for the repairs when you break something. Naturally, there is a bit of tension between the car's owners and the man driving it through a war zone every day.

Despite the difficulties, we placed SEALs alongside Army Special Forces alongside Army Rangers alongside intelligence analysts whose prior exposure to our operators had been limited to complaints about the speed and quality of the analyses they provided. Individual and organizational arrogance manifested itself in subtle ways as people tried to assert or maintain their preeminence. Ultimately, however, the

press of the fight demanded expedience, and expedience demanded a meritocracy. If an individual or unit produced good intelligence, reliable coordination, or accurate and timely warnings, they rose in relevance and respect. Legacy accomplishments or bluster might work for a while, but eventually people either produced or faded in importance. No one wanted to hear what you'd done in the last war.

However dysfunctional the internal competition within our command, it was dwarfed by that between our organization and the CIA, NSA, FBI, and other external agencies. Much as von Braun found with NASA contractors, we realized that no group could be useful if it did not understand the full context. We could not simply ship our intelligence requirements out to these agencies and expect them to realize all the intricacies of what we wanted and needed. They had to sit with us, to understand exactly what was happening on the ground. We hoped that eventually they would reciprocate by giving us similar insights into how the war looked from their offices.

When filled, the SAR felt cramped and occasionally very loud. Many of the people sent to work with us found the environment distracting, or were uncomfortable in the participatory atmosphere. For bureaucrats who had built careers on discretion and never putting a toe out of line by oversharing, our way of working was anathema. One partner agency offered the same response every day for the first year of our experiment: "Nothing new to report on our end."

Just as our individual teams benefited from a shared sense of purpose that extended from the tactical situation on the ground to larger strategic goals, the elements of Task Force would need to share both an up-to-the-minute awareness of the battlefield and a belief that we were all fighting the same war, based on the same principles and with the same objectives. We hoped to lay the foundations for both, as NASA had done, by pressing holistic awareness and integration throughout the organization as a whole. If everyone had the same playbook, maybe we would get better at the game.

The critical first step was to share our own information widely and be generous with our own people and resources. From there, we hoped that the human relationships we built through that generosity would carry the day.

Information sharing had to include every part of the force. As soon as our operators completed a raid, we would rush the evidence to the nearest outstation, photograph every scrap, and use our new bandwidth to feed the data to imagery analysts, linguists, and other subject matter experts. It was choppy and unpolished, but instantaneous—no more trash bags and Post-it notes piling up in a closet. Moreover, as with our cc's and our speakerphone, we distributed our intelligence and analysis widely, without preconditions. This struck many as naïve. But, as the old adage goes, "knowledge is power," and we were throwing that power to the wind. Our thinking was that the value of this information and the power that came with it were greater the more it was shared.

SUCCESS

By 2005 at least one of our hypotheses had been confirmed: because the intelligence agencies got faster and more robust intelligence from the Task Force than from any other source, they dramatically increased their participation. Our process began to develop its own gravitational pull as more and more groups recognized what the speed and transparency we had put in place could offer. Our forces were in daily contact with Al Qaeda, the nation's highest counterterrorism priority, and we were offering to share whatever we were learning.

Many of the Joint Interagency Task Forces (JIATFs) we had formed in Iraq and Afghanistan grew as partner agencies began deploying more young analysts to serve "downrange" and gain access to the intelligence our operators and sources were producing. A Defense Intelligence Agency (DIA) analyst could walk from the JIATF over to our Temporary Screening Facility, where we housed Al Qaeda detainees, and contribute questions to, or observe the interviews of, a detainee.

The analyst could write a firsthand report for his headquarters with the most current information from the counterterrorism battlefield. That was good for the analyst, and good for the analyst's organization. It might also generate a response from the analyst's parent organization that could be valuable to us the next day, or be connected to another report from somewhere else in the world. One individual, properly empowered, became a conduit to a larger network that could contribute back into our process. We made sure that our operators interacted with the analysts; one Army Special Forces squadron commander mandated that his operators sit with intel analysts, taking notes on how they worked, how they thought, and what kinds of information they found most useful. As he put it, "To win, all of us would need to be knee deep in the fight, all of the time."

In time, people came to appreciate the value of systemic understanding. O&I attendance grew as the quality of the information and interaction grew. Eventually we had seven thousand people attending almost daily for up to two hours. To some management theorists, that sounds like a nightmare of inefficiency, but the information that was shared in the O&I was so rich, so timely, and so pertinent to the fight, no one wanted to miss it.

The O&I also became one of the best leadership tools in my arsenal. Our organization was globally dispersed and included thousands of individuals from organizations not directly under the control of the Task Force. The O&I could not replace a hand on a shoulder, but video could convey a lot of meaning and motivation. Our leadership learned, over time, to use this forum not as a stereotypical military briefing where junior personnel give nicely rehearsed updates and hope for no questions. Instead, it was an interactive discussion. If an individual had a four-minute slot, the "update" portion would be covered in the first sixty seconds, and the remainder of the time would be filled with open-ended conversation between the briefer and senior leadership (and potentially anyone else on the network, if they saw a critical point to be made). Instead of black-and-white lines of questioning ("How many

x?"), our dialogue became interactive and broad ("Why are you thinking *x*?"). The responses to this type of interaction created new insights, deepened the group's understanding of a complex issue, and highlighted the deep levels of understanding of our personnel around the globe. Most important, it allowed all members of the organization to see problems being solved in real time and to understand the perspective of the senior leadership team. This gave them the skills and confidence to *solve their own* similar problems without the need for further guidance or clarification. By having thousands of personnel listen to these daily interactions, we *saved* an incalculable amount of time that was no longer needed to seek clarification or permission.

The fusion of operations and intelligence (*O* and *I*) was the essence of the meeting. An imagery analyst could report on recent activity at a location of interest during the meeting (say at 5:00 p.m. Iraqi time), and that house could be raided by Rangers within hours. At the next day's O&I, another analyst could then discuss the chemical makeup of the explosives found in the house's car-bomb workshop. The initial imagery analyst would get the visceral satisfaction that her work had saved lives and that her continued effort was impacting operations directly, not just generating a paper storm in D.C. Our organization was not just "getting smarter" or "doing more" in isolation. Instead, it was *acting* smarter and learning constantly, simultaneously.

The best moments in the O&I were when the briefing touched off a debate between different agencies, or teams, or departments. Perhaps two analytical silos had reached drastically different conclusions based on the same evidence, and we needed to reconcile them and understand why. Perhaps a team in Mosul had seen a tactic, or a group of individuals, eerily reminiscent of what a team in Tikrit had seen last week. The meetings allowed critical information to reach the right ears and eyes. The risk, of course, was that it might reach the wrong ears and eyes as well. The question was how that potential risk stacked up against the benefits.

WHAT ABOUT WIKILEAKS?

On January 5, 2010, a twenty-two-year-old Army specialist walked out of a secure—or supposedly secure—room on Forward Operating Base Hammer, forty miles east of Baghdad, with nearly 400,000 highly classified military reports from the war in Iraq, all saved on CDs he had marked "LADY GAGA." Three days later, he popped the CDs into his work computer and downloaded 91,000 reports on Afghanistan. Over the next several months, he repeated the same stunt, eventually gathering 250,000 classified State Department cables, which he passed on to WikiLeaks. By November, all had been released on the Internet to the global public.

The U.S. government went into convulsions. "This disclosure is not just an attack on America's foreign policy interests," said Secretary of State Hillary Clinton the day after the State Department cables leaked. "It is an attack on the international community." Never before in U.S. history had so much classified material been compromised in one blow. Since then, several similar incidents have unfolded, most notably the even bigger leak perpetrated by contractor Edward Snowden.

An investigation identified the soldier, who by then had been demoted to private first class, as Bradley Manning.* A Fox News op-ed asked with outrage how "all this leaked information was the work of a single 22-year-old enlisted man in the Army." The author was incredulous: "How could one individual gain such access to all that classified material? Clearly we have grossly under-prioritized information security."

Since *The 9/11 Commission Report* famously concluded that the U.S. intelligence community had all the pieces of the puzzle but had failed to put them together and protect the country, the national security community has seen a gradual but undeniable paradigm shift toward greater information sharing. Ten years after September 11, fact finders for the Senate Committee on Homeland Security and Government Affairs reported, "the attacks on 9/11 showed all of us that the Cold War 'need to know' system for managing classified and sensitive

information drove a culture of information security that resulted in countless stovepipes and secretive pockets of the nation's most valuable information." At the same time, the national security apparatus has ballooned in size. As of this writing, 854,000 people hold clearance at the top secret level and a third of them are private contractors. The result is that more secret information is more easily accessible by more people than has ever been the case.

Partly as a result of those changes, a very young soldier with a history of depression and erratic behavior was given access to a trove of secret documents. Stealing and disseminating those documents was as easy as using some elementary code work and a few compact discs.

Should better defenses have been in place to prevent this information from being copied by Manning? Certainly. Should blank CDs be disallowed in a Secure Compartmentalized Information Facility? Obviously. Should superiors have intervened and prevented Private Manning from deploying to Iraq based on a history of behavioral issues in the Army? Without a doubt. Did Private Manning put lives at risk? Yes. But was it a mistake to design a system that gave privates and specialists access to extensive and valuable data? Absolutely not.

Massive leaks are *not* an inevitable consequence of the current level of information sharing, but even if they were, the benefits vastly outweigh the potential costs. The sharing of information within the U.S. intelligence community since 9/11 has saved many lives and done far more good than the damage from incidents like the Manning and Snowden leaks has done harm. We should not let the fact that the benefits are usually invisible—whereas the leaks make front-page news—blind our assessment. Our Task Force never experienced any serious leaks, but we knowingly ran that risk every time we held our O&I. Our experience was that shared information saved lives on an untold scale.

Brains in a footlocker benefit no one, and taking them out was a critical step. However, achieving teamlike levels of shared

consciousness would take more than just sharing information.

RECAP

- Shared consciousness in an organization is either *hindered or helped by physical spaces and established processes*. Often, efforts to facilitate Taylor-inspired efficiencies have produced *barriers to information sharing and the kind of systemic understanding we needed to pervade our Task Force*.
- Creating transparency and information sharing at the scale we needed required not only a redesign of our physical plant, but also a rethinking of almost every procedure in our organizational culture. The daily O&I briefing lay at the core of our transformation: this pumped information about the entire scope of our operations out to all members of the Task Force and partner agencies, and also offered everyone the chance to contribute.

Chapter 9

Beating The Prisoner's Dilemma

In one of the most memorable scenes from Ron Howard's 2001 movie *A Beautiful Mind*, the protagonist—mathematician John Nash, played by Russell Crowe—is sitting with three colleagues in a Princeton bar when four women walk through the door. One of them, referred to only as "the blonde," is breathtakingly beautiful. One sultry glance from her over to the mathematicians' table and the men are convinced that she is interested—but who is to be the lucky man? Jokingly, one asks, "Shall we say swords, gentlemen? Pistols at dawn?" Another says, "Every man for himself, gentlemen." Another provides academic context for their face-off, saying, "Recall the lessons of Adam Smith, the father of modern economics …," to which the group replies, together, "In competition, individual ambition serves the common good." But Nash/Crowe, shuffling the stack of papers he brought with him to their night out, doesn't join in. Instead, he adopts the far-off look that moviegoers know signals revelatory contemplation and, as ethereal piano twiddling grows louder in the background, he says quietly, "Adam Smith needs revision."

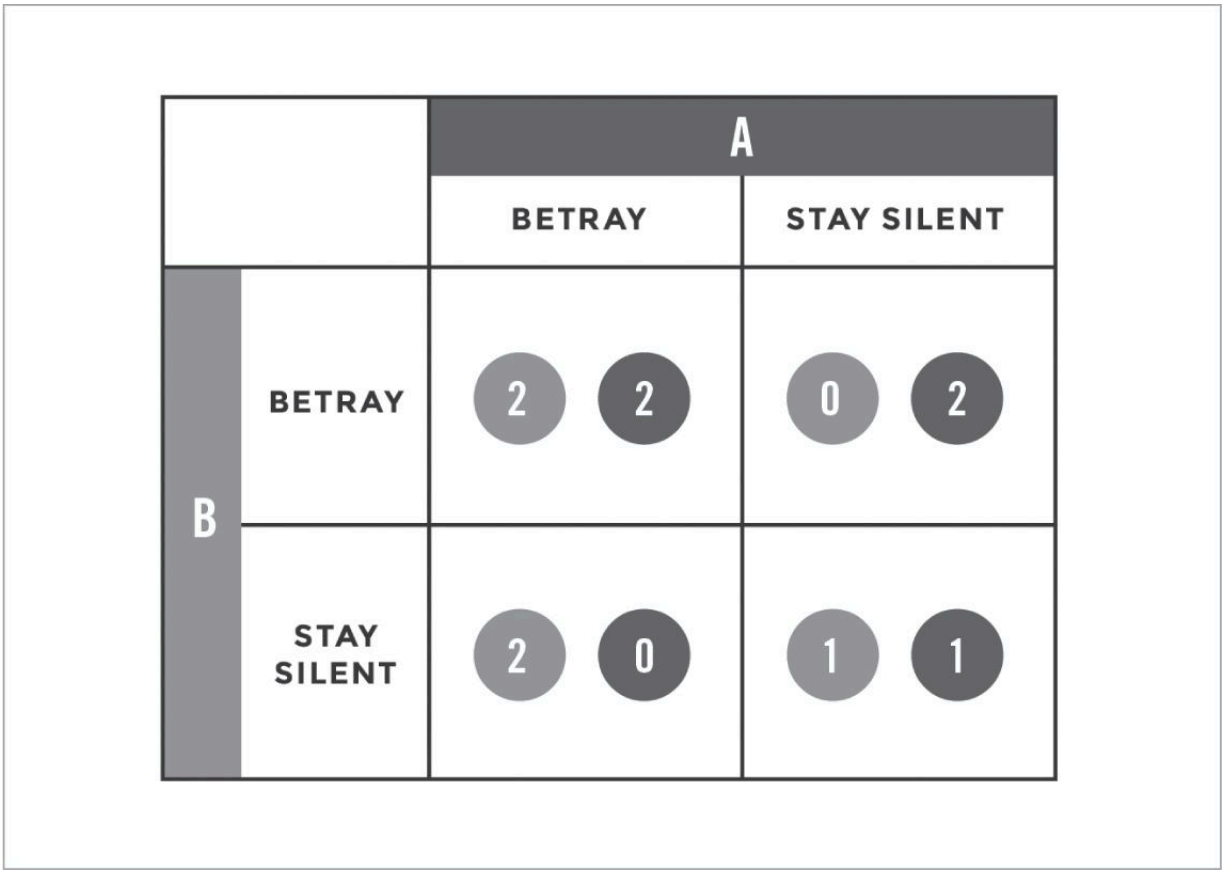
"If we all go for the blonde," he explains, none will get her—determined to undermine one another, they will, driven by competition, destroy one another's chances. "Then," he says, "we will go for her friends," but scorned by being second choice, they will all give the men the cold shoulder. "What if no one goes for the blonde?" he suggests. If the four men each strike up conversation with one of her four friends, "we don't get in each other's way, and we don't insult the other girls."

With a faint grin, he says, “It’s the only way we win,” then runs out of the bar to spend the night alone recording his epiphany.

This fictionalized episode provides a good introduction to one of the major ideas of game theory: while Adam Smith has led us to believe that, as movie-Nash summarizes it, “the best result comes from everyone in the group doing what’s best for himself,” movie-Nash adds that there are times when “the best result would come from everyone in the group doing what’s best for themselves … and the group.”

This basic tenet of game theory is also illustrated by the Prisoner’s Dilemma. In this famous thought experiment, two criminals—coconspirators—are arrested. They are taken to separate cells and interrogated. Both are offered the same deal: if you stay silent you’ll be sentenced to one year; if you rat on your partner you’ll go free; but if your partner rats on you, you’ll serve two years. From a competitive, personal-interest perspective, both prisoners are incentivized to rat. However, as the diagram illustrates, if *both* prisoners rat then they *both* end up with a worse deal—serving two years—than they would have had they cooperated (each serving one year).

Prisoner’s Dilemma



The Prisoner's Dilemma has interesting management implications. First, it suggests that there are circumstances in which cooperation is better than competition. This may seem obvious, but many managers assume that the healthy competitiveness *between* companies (the lifeblood of the free market) should be echoed *within* companies. Some of the twentieth century's most fabled executives extolled this "competitive spirit," purposefully pitting individual workers and departments against one another. Jack Welch introduced the "stack ranking" system, where employees constantly saw themselves assessed relative to others, an approach that became popular with leaders in other industries. Encouragement to collaborate tends to be more of a bumper sticker slogan than an actual managerial practice. In an interdependent environment, however, collaboration may be necessary to survival.

We were a real-life Prisoner's Dilemma. Each agency feared that sharing intelligence would work against its own interests. Competition between agencies made them reluctant to provide information; what if a partner agency didn't reciprocate? If each agency would cooperate, we would have the best possible outcome, but we could achieve that outcome only if we overcame the dilemma.

Incentivizing collaboration, however, is easier said than done. For starters, both prisoners must be shown the entire decision-making system, not just their own choices. If shown only his own fate, each prisoner will choose to betray the other. It is only when they are shown the decision-making stakes of the accomplice that they understand the consequences. This was what we were trying to achieve with the participatory transparency of our physical plant and forums like the O&I.

There is something else at play as well. While systemic understanding gives each prisoner an intellectual reason to understand why cooperation *would be* beneficial, it does not provide an assurance that his or her accomplice will follow through. After all, each individual's "dominant strategy" is betrayal. Even with holistic awareness, the prisoners still have to take a leap of faith.

We needed true, not theoretical, collaboration, transparency, and trust. Putting everyone in the same room was a start.* But if we wanted instinctive, second-nature, teamlike trust, we would have to go much deeper. The stronger the ties between our teams—as with the prisoners—the higher the likelihood we would achieve the level of cooperation we needed.

When we first began nurturing shared consciousness, we did not fully appreciate the strength of the cultural barriers we were trying to overcome. If our partner organizations came to the table at all, they came with decades-long histories and a particular telescope for viewing the problem—what happened outside that tube of vision was irrelevant. Intelligence agencies wanted to build networks of understanding ground truth—through human sources or information or technical

collection means. Diplomatic agencies wanted to create long-term institutions and stability. Our counterterrorism forces wanted to solve the real-time problems they saw on the battlefield night after night. Each of these perspectives had value, but none could succeed in isolation. Showing them abstractly was not enough.

In order to achieve cross-functionality, our bonds with our partner organizations had to become as strong as those between the individuals on our operational teams. Too often we viewed our partners solely in terms of what we could get and give. We began to make progress when we started looking at these relationships as just that: *relationships*—parts of a network, not cogs in a machine with outputs and inputs. The kinds of relationships we needed have roots that go deeper than simply bartering. If we could develop that kind of understanding between partners, then one day down the line in a particularly urgent moment, one side might be able to urge the other, "trust me here," and have it work out.

WALK A MILE IN AN ANALYST'S SHOES

One of our most controversial moves was our embedding program, an exchange system we began in late 2003 in which we would take an individual from one team—say, an Army Special Forces operator—and assign him to a different part of our force for six months—a team of SEALs, for example, or a group of analysts. Our hope was that, by allowing our operators to see how the war looked from inside other groups, and by building personal relationships, we could build *between* teams some of the fluency that traditionally exists *within* teams.

Predictably, initial resistance was intense. "Our teams train in entirely different ways," I was informed. I was told that I needed to understand that the tight bonds inside assault teams came from working with trusted comrades over years—to insert an outsider is an unwise and unfair risk to operators already performing the most difficult of missions. Simply put, it was anathema to the entire history and tradition of special operations selection, training, and war fighting. But I, and some other

leaders, were convinced that we would have to bring together the different elite forces across the Task Force to an extent never before required or envisioned. This fight could not be won by anything but a tightly connected team.

As we implemented these exchanges, what we saw would likely have been predicted by a social scientist. Although it was a “forced” initiative, once the mandate was in place, elite units were naturally incentivized to send their best operators and leaders. These individuals would be representing their organization, so unit pride would drive them to select the best examples from an already highly selective sample set. Many of these top-of-the-pack personalities were also the types that had a natural ability to connect with others—especially in an environment where leadership and one’s capability as an operator were a critical measuring stick among peers.

For example, we would require that an Army Special Forces operator embed with a SEAL team. The Special Forces are characterized by exceptional discipline at the individual level, while SEALs pride themselves on creative thinking at the operator level and a strong sense of individuality. The points of tension were predictable. But the Special Forces operator would soon realize the cultural norms of the SEALs and, while remaining true to his home unit’s ethos, find a way to work effectively within the new structure. Over time, he would also begin to see some of the positives of the alternative approach, ultimately learning from SEAL culture and finding strengths that he could bring back to his team. The SEALs, meanwhile, would see in the Army operator the strengths of the culture that he came from, realizing that the individuality promoted there clearly comes with strengths that they could learn from. As an added bonus, each unit wouldn’t see the exchanged operator as a one-off example; rather, they would see their newfound friend as representative of the entire unit from which he came—and their feelings of trust and understanding would expand to the other unit, even if they’d only really gotten to know a single operator. This connective tissue grew stronger. When these operators returned

to their home unit, their positive comments on the rival unit would spread, deepening the ties between teams. Slowly, we grew the bonds of trust needed for us to overcome our Prisoner's Dilemma.

We also expanded and refined our system of sending liaison officers to our partner organizations. Liaisons are institutionalized ambassadors who serve to connect organizations—our Task Force would send a liaison to, say, the CIA, and they would send a liaison to us. Traditionally, this was a duty assigned to someone on their final tour before retirement or as a way to shuffle someone away from a squadron where they were not fitting in. Their duties were unenvied, and they were generally seen as a spy by the gaining organization—someone who was there simply to sit through meetings and report back to their home organization. They brought very little to the plate, and were rarely trusted.

However, as interfaces became increasingly important, we realized the potential for bolstering our relationships with our partner agencies by way of a strong linchpin liaison officer (LNO). As it turned out, some of our best LNOs were also some of our best leaders on the battlefield. We started taking world-class commandos—men who could snipe, fast-rope, and skydive—and we placed them, attired in civilian suits, in embassies thousands of miles from the fight, because we knew we needed a great relationship with the ambassador and the other interagency leadership posted there. Everyone hated removing some of our best operators from the battlefield, but we reaped enormous benefits.

Our goal was twofold. First, we wanted to get a better sense of how the war looked from our partners' perspectives to enhance our understanding of the fight. We saw one piece of AQI up close and daily, but we knew that they were part of a larger, global system of finance, weapons, and ideology about which other people knew much more than we did. Second, we hoped that if the liaisons we sent contributed real value to our partners' operations, it would lay a foundation for the

trusting relationships we needed to develop between the nodes of our network.

We became LNO fanatics. I would spend hours with my commanders hand selecting the best personalities and skill sets for different jobs. The person we sent to liaise with the embassy in Amman needed to be one thing. The one sent to work with the chairman of the Joint Chiefs of Staff, another. We knew we always needed a superstar in certain key positions, such as our LNO to the CIA, and I would insist that these key locations be manned by someone who had proven effective elsewhere. If we looked at our global enterprise as an organism, with the heart in the middle of the combat zone, these LNOs were our nerve endings.

When asking for LNO nominations to fill critical positions, we used two criteria: (1) if it doesn't pain you to give the person up, *pick someone else*; (2) if it's not someone whose voice you'll recognize when they call you at home at 2:00 a.m., *pick someone else*. Previously, we might have made these decisions based on rank, position, or where people wanted to go in their careers. But to get this right, personal qualities trumped everything else. These were people who needed to enter an unknown, and sometimes hostile, bureaucratic environment, then build trust-based relationships with the leadership there—a very difficult proposition.

Once we had LNOs in place, they couldn't fall victim to the "out of sight, out of mind" syndrome. Nor could they be viewed as simply staff augmentation to the organization we'd sent them to. Instead, we considered them precious assets—but knew they could be that only if we had the right personalities, empowered with the right support from us.

Early on we learned that to be effective where we sent them, our LNOs needed to have access to senior leaders in that organization, and to be trusted. That didn't come easily.

Lieutenant Commander Conway's* reception was chilly. I'd secured grudging permission from the country team in the U.S. embassy in an unstable Middle Eastern country to place a single Task Force liaison with them to help coordinate the wider effort against Al Qaeda, but there were clear, understandable reservations when the battle-hardened SEAL officer appeared. Worries ranged from compromise of sensitive intelligence to concerns over Task Force combat forces appearing on the scene. Some were as mundane as the competition for physical space in the embassy, others more deeply rooted in the wide gulf between organizational cultures. Most qualms were as unfounded as they were natural, but all were real obstacles.

We'd chosen Conway carefully. He was a walking mass of extroverted energy, habitually upbeat and helpful. In his previous tour he'd worn body armor and night vision goggles to go toe-to-toe with Al Qaeda fighters in Anbar Province, but his new mission required him to be accepted by his new colleagues. Where Iraq had forced Conway to risk his life, now he decided he had to subordinate his ego.

At his new post, he was initially granted no access to intelligence and given nothing to do, so Conway volunteered to take out the trash. Each afternoon he went office to office gathering refuse and carrying it to the dumpster. When he found out that one embassy colleague loved Chick-fil-A sandwiches, Conway arranged for the next Task Force delivery to include several in its contents. A man the U.S. government had spent hundreds of thousands of dollars to train as a SEAL was, for three months, a glorified garbage man and fast food delivery boy.

But when the situation heated up in the country's capital and the ambassador came to our LNO and asked whether he knew anything about force protection and dealing with the growing Al Qaeda threat, our man was exactly where he needed to be. "I do," he said. "That's what I'm trained in. And I can do you one better—let me make a call." Soon, the entire weight of the Task Force enterprise was at the disposal of the interagency team at the embassy. Our LNO was there to

serve the collective mission—from trash to terrorism. The Task Force's relationship with that country grew tighter nearly instantaneously. A new node in our network came online and began to thrive.

We found that it was essential that we make our LNOs key players at their host agencies. To some degree, like Conway, our men and women could accomplish much through force of personality and talent, but they also needed institutional support from the Task Force. I thought of my LNOs as old-school deep-sea divers, connected to the surface by an oxygen hose. Their effectiveness depended on our ability to pump resources and information to them, making them effective and desirable to their hosts. Nothing was more highly valued by many of our partners than insights into the shadowy counterterrorist fight we were waging. So we armed our LNOs with a constant stream of intelligence, and empowered them to share it as they felt appropriate. Information sharing was key, because ultimately, that was what we might one day turn around and request from the host agency in return. Ideally an LNO would develop such a fantastic relationship with the NSA or National Geospatial Agency (NGA), for example, that when we really needed sensitive signals or imagery intelligence on a target *urgently*, it would come quickly, fully, and without any bureaucratic friction—on a phone call.

As partner organizations came to appreciate our LNOs, they reciprocated by sending their own LNOs to us. The talent pool available to us steadily increased as our partners came to realize that the better their LNO, the more they could leverage the Task Force to help with their hardest missions. The empty seats around our SAR filled up. The JIATF swelled with analysts sent from across the United States. Just as BUD/S increases the horizontal bonds between aspiring SEALs, we found that this approach to collaboration was strengthening the ties not only among the Task Force's internal teams, but also between the Task Force and the partner agencies with whom we would have to cooperate in order to win the fight. As the liaising "ramped up," organizations signaled their enthusiasm about our Task Force by the quality of people

that they sent us. Receiving a talentless functionary frequently meant that his home agency was planning to stonewall; a superstar showed they were eager to engage.

Steadily, in large part as a result of internal embedding and LNOs, and complemented by the growing O&I, we began to overcome internal competition and barriers to cooperation. Bonds of trust began to form. People from different tribes began to see increasingly familiar faces. Even strangers were now, by extension, part of a familiar and trusted unit entity, and received the benefit of the doubt. Being part of the network became an important form of capital. Most important, it was not a zero-sum game; the more you put into the system, the more it could serve you.

Nowhere was the elimination of territorialism clearer than in the exchange of our coveted air assets.

ISR

Under a pitch-black sky, thirty operators jogged toward idling helicopters. Rotor blades whirled, kicking hot desert air across the airfield runway. Ten minutes earlier, this team had received its final briefing on the night's mission. They would be in flight for thirty-five minutes, and then patrol for nearly an hour before hitting the target. They were out to capture a mid-level AQI operative. The target, they believed, had intelligence that would help them get one step closer to an upper-echelon enemy leader in the region. It would not be the most incredible mission of any of their careers, but it was the night's work, and an important step in their efforts to understand and dismantle the network.

The operators took their seats, and officers took final headcounts. The assault commander plugged into the helicopter radio. With the flip of a switch, he could speak with his team on the helicopters, the pilots up front, or his leadership at headquarters. He could also monitor communications between his headquarters and other assault elements

around the country. His pilots were going through final checks when he heard the call.

“Lima 2-1, this is Lima 0-3.” His senior officer, who sat five hundred yards from the helicopters in their operations center, was making contact. Perhaps, he hoped, it was a positive update from the target site which was currently being monitored by ISR (intelligence surveillance and reconnaissance) feed into the operations center.

“Go for 2-1,” he replied.

“We just got word, 2-1, that ISR is being pulled for a priority target in Baghdad. That puts us below minimum requirements. We need to stand down.”

The commander felt frustrated. His pilot, who also heard the call, looked over his shoulder and made eye contact with the assault team leader. The pilot slashed his hand across his throat to confirm what he’d just heard. The assault team leader nodded, then cued his radio. “Roger, 0-3. Shutting it down.”

The pilot killed the rotors. “We lost our ISR, gents. We’re standing down.” In the dark, he could see helmets being removed and heads shaking. It was the second night in a row that they had lost their assets.

To a degree never before seen in warfare, ISR assets like Predator unmanned aerial vehicles or a small, prop-driven, manned aircraft, like the Beechcraft King Air we’d gutted and outfitted with surveillance equipment, became coin of the realm in our fight in Iraq and Afghanistan. ISR dramatically expanded our ability to gather intelligence on targets and develop new ones. In the conduct of raids the real-time FMV (full-motion video) coverage that was piped to multiple locations on the ground allowed commanders to pare assault forces to a minimum by providing security from enemy reinforcements that had before required us to place a cordon of troops around the target site. Without ISR, a raid might require an additional platoon or more of troops, more helicopters, and other support. Simply put, the more ISR a unit had access to, the more operations it could execute.

Competition for ISR within our task force was intense. Early in the war, one of the most time-consuming parts of senior leadership's job was determining where to deploy our limited assets. When a ground commander was forced to hand over an ISR asset, it could cause internal convulsions in the Task Force, and potentially serious loss of morale for the affected unit. The way our operators experienced it on the ground, one moment they had a helicopter or a Predator, the next moment it was gone. From their vantage point, someone else had taken it—it *was* a zero-sum game. All they knew concretely was that they couldn't do their mission.

When they understood the whole picture, they began to trust their colleagues. Much like the prisoners deciding whether or not to rat, our commanders' responsiveness to such demands grew as they came to understand the greater environment in which the decision had been made, and the people receiving what had been taken away. Previously, the world outside of a commander's domain looked like a black box; once an asset left, it was just *gone*. Once they could see *why* and *how* their assets were being used, however, and once they knew and respected the other individuals handling these tools, things changed.

Before, these decisions took place behind closed doors. Now, the resourcing conversations sometimes occurred right in front of them during an O&I. "When we started constantly talking at lower levels of the organization," explains an enlisted SEAL who worked with the Task Force in Iraq, "we could basically see where the fight was hot, where it wasn't, and where people needed ISR the most. Plus, we could see that it was actually to our benefit sometimes to surrender that asset." With that awareness came a faith that when theirs was the priority mission, they would get what they needed when they needed it. Holistic understanding of the enterprise now permeated the ranks.

As person-to-person relationships across the enterprise deepened, unit commanders gave away prized assets, often to the initial surprise and frustration of those below them, because they trusted that the asset would be used in a context even more critical than their current

situation. Moreover, they began to see the favor being repaid in kind. This fostered trust in the other unit among even the most skeptical, hardened, competitive operators. Suddenly, we were overcoming our Prisoner's Dilemma.

We had worked out our solutions to the Task Force's Prisoner's Dilemma by trial and error, but we later learned that game theory scholars shared our conclusions. In 1980, Robert Axelrod, a professor of political science at the University of Michigan, solicited programs for an iterative computer Prisoner's Dilemma tournament. The fourteen entries in the original first round—submitted by leading game theorists across a spectrum of disciplines, including economics, psychology, mathematics, and political science—varied greatly in initial strategy and complexity of coding. However, the winning strategy contained just four lines of code. Submitted by University of Toronto professor Anatol Rapoport, the program was called Tit for Tat. The strategy always began with cooperating, and then simply did what the other player did on the previous move, cooperating if the other cooperated, defecting if the other defected. It did not hold a grudge: if its opponent began to cooperate again after defecting, Tit for Tat would also return to cooperation. A second round of the tournament was held, and many more entries were submitted. Again, Rapoport's simple strategy won out. The program succeeded because it defaulted to trusting, cooperative behavior, and punished the other player for selfish behavior. However, as one peace and conflict studies expert has since noted, "the punishment lasted only as long as the selfish behavior lasted. This proved to be an exceptionally effective sanction, quickly showing the other side the advantages of cooperating."

Daniel Kahneman, the Nobel Prize–winning cognitive scientist, believes that the human mind has two different decision-making tracks: "system 1" operates automatically and quickly, while "system 2" is deliberate and effortful. We tend to use system 1 frequently and reflexively—for instance, gauging the emotions on someone's face—

and apply system 2 when weighing difficult decisions or attempting complex calculations. What we saw in the Task Force was that while cooperation began as a conscious system 2 decision ("they'll help me later if I help them now; cooperation is in my interest"), a track record of productive collaborations led to reflexive, system 1 cooperation—in other words, real trust. Furthermore, this trust had a viral effect: once it passed a certain threshold, it became the norm.

One of the best examples of this symbiosis was our newfound ability to hit "follow-on targets."

FOLLOW-ON TARGETS

AQI was organized as pockets of fighters spread geographically around the country. Key leadership moved constantly, bouncing between geographic hubs to share information and guidance with their network of fighters. If Al Qaeda was an organism, the hubs of fighters were the muscle, while the mobile leaders were the oxygen, providing energy for the muscles, and the roads of Iraq were the circulatory system through which this oxygen could flow. Movement over long distances was done during the daylight hours, since AQI knew that our night vision and overnight reconnaissance assets gave us an advantage over them in the dark. If we were to disrupt their network, we not only needed to own the night, we had to disrupt the oxygen flow during the day.

Daytime interdiction of AQI leadership was a simple and elegant concept, born on a whiteboard during a discussion between operators and intelligence officers. If life worked like the movies, the force would have launched an operation immediately. But on a real battlefield, such concepts are followed by a litany of logistical queries. How would we follow the vehicle in heavy traffic? How would we stop a vehicle? Could our helicopters get from our compounds to the vehicle's location fast enough? As operators approached the location, how could they be sure they were moving toward the correct car? The list went on. Success would require perfect choreography between our best ground

operators, our helicopter pilots, our operational headquarters, and our overhead intelligence collection platforms, as well as fluid, iterative adaptation across our force.

A typical cycle ran like this: After we hit a target in the middle of the night, the assault element would return to base, debrief the mission, and ensure that intelligence analysts were tracking any key information they'd learned on the target. The operators would grab a hot meal before heading to bed just after sunrise. At this point, their work, for the night, is done. Meanwhile, the daylight-hour intelligence teams continue to monitor the target. The interaction between these operators and analysts, once uncomfortable and mechanical, is now fluid and natural; they trust one another and knew that cooperation is in their own interests, as well as for the greater good.

On one of our raids, the previous night's target building had been a safe house for a group of fighters. Just before noon, while our operators from the night prior are sleeping, overhead reconnaissance platforms identify a vehicle pulling up to the compound—the site of the gunfight a few hours ago. A blurry black-and-white video feed grabs the attention of the daylight intelligence team. They watch as the driver and two others park outside and walk into the courtyard, clearly unaware of the previous night's activities. All eyes focus on the three fuzzy figures on the large screens at the front of their operations center. The figures slow as they enter the courtyard—sensing that something isn't right. They stop and look around, probably unnerved by the lack of movement. They call out to their friends, but hear nothing in return. They move a bit more, now very cautiously. Perhaps they notice expended cartridges on the ground, or freshly broken window glass. All three stop cold, turn to each other, then sprint back toward their vehicles.

Instantly, a young intelligence analyst reaches for the secure phone on her desk. She is twenty-three years old, and on her second combat tour. No one is directing her actions, and no one would reprimand her if she did nothing. But she knows what to look for, and she has just seen

it. She is aware of this particular compound's importance in the current fight, as she is in seamless contact with the intelligence team supporting nighttime operations. Most important, she knows exactly whom to contact. Her phone call is not being made to inform and is not a request for permission—its purpose is to create action, which is exactly what it does.

"There's movement at last night's compound. Vehicle arrived, three people exited, then hopped back in the vehicle and sped east after realizing there'd been a fight," she says to the operator on the other end of the line.

"Get it on!" he yells to his operators, who instantly reach for their gear. Sixty seconds have passed since the vehicle sped away.

"Okay, we're looking at it," he says, back on the line. He has now pulled up the same intelligence video feed in his operations room. He puts her on speakerphone so that her voice can help feed the thinking of the personnel in his team room. She explains what she's seen while he and the others on his team listen. They watch the vehicle's movement as the operations center goes from medium to full-octane in a matter of sixty seconds. Likely vehicle routes are mapped on displays at the front of the operations center. Helicopter engines start to whir. Operators move toward their staging area. Four minutes have passed since the vehicle sped away.

The car begins to move east, and the targeting team starts identifying locations along the likely routes that are feasible for an interdiction. They estimate they have a forty-minute window. If everything lines up perfectly, they'll know soon enough who the three figures were.

After a quick update in the staging area, the operators jog toward the waiting helicopters some two hundred meters away. Already sweating in the 110-degree heat, they duck as they approach the spinning rotor blades and split up onto the various aircraft. Some strap themselves to the external benches of MH-6 Little Birds, others climb inside larger

UH-60 Black Hawks. The helicopters lift up and the base disappears behind them. Eight minutes have passed since the vehicle sped away.

As they fly, a live video stream of the target vehicle is pushed to multiple headquarters around the country. The operators in the helicopters receive real-time updates on the direction of the vehicle and any suspicious activity. As the vehicle chooses its route, the potential locations for interception narrow, and the pilots and assault team leader refine the plan. Finally, only one option remains. The helicopters head in that direction and loiter over the horizon. Reconnaissance assets inform operators and intelligence teams that the vehicle is continuing to head to the interception site; they estimate it is three minutes out. The entire assault team hears the information in real time; they do a final check on their weapons and prepare to insert.

"Vehicle is stopping." The voice on the radio belongs to an analyst in the operations center—a voice they now know and trust. "Original vehicle is stopped on the roadside … two kilometers from the interdiction site … another vehicle has pulled up alongside." The operators wait. "Okay … one passenger from vehicle one has gotten into vehicle two. Vehicles have departed in opposite directions. Vehicle one is two minutes from interdiction zone."

The assault team commander knows that the next move is his. Any hesitation and they could lose both opportunities. "Execute on vehicle one," he tells his helicopter pilots—and they make a beeline to the interception zone. Then, calling back to his operations center, the assault team leader tells them, "Cut one asset to follow vehicle two. Possible follow-on target." The entire team hears him as he passes these orders on the common radio network. There are nods from the people onboard his helicopter. Everyone from the pilots to the assaulters to the intelligence analysts in the operations center shares an understanding of the situation and knows the plan.

Approaching the interception zone, overhead reconnaissance platforms seamlessly talk the helicopters onto the right vehicle. They land their aircraft in a perfect configuration to force the vehicle to stop.

The dust from the rotor blades and noise of the engines confuse the driver and his passenger. Before they get their bearings, operators heave the doors open and the two suspects are secured. Though there are weapons in the car, neither individual had time to reach them. The vehicle is searched in a matter of minutes as the two are questioned about their activities. They quickly divulge that they're nobodies—local fighters—who'd been told to drive someone more senior for the day. That's all the operators needed to hear.

"It's the other guy, boss," states one of the operators over his interteam radio. It's the first time he's spoken since the mission began, but he has perfect context on the multiple changes that have taken place over the past twenty minutes. The assault team commander again moves without hesitation.

"Detain them on aircraft two," he states over his radio. "Reload the birds. We're taking vehicle two."

The entire mission is recalibrated. New plans are made, literally, on the fly. Intelligence teams at the operations center plot the direction of vehicle two, identify new cutoff points, and communicate these with the pilots. The attention of the Task Force shifts in unison to the new objective. Helicopters land for a second time. Operators sprint toward vehicle two. The senior member is taken into custody—and a bit of oxygen is taken out of the Al Qaeda network. Forty-six minutes have passed since the vehicle sped away from the compound.

No single supervisor had planned or even dictated in the operation in real time; the solution emerged from a dense knot of interactions at the ground level. My role in these situations was usually that of spectator. One key to the success of operations like this was the contextual awareness made possible by the O&I, but equally important was defeating the challenge of the Prisoner's Dilemma—the creation of strong lateral bonds through our embedding and liaison programs. Only with deep, empathetic familiarity could these different units function so seamlessly together—put their lives on the line for one another. What

on the surface seemed like an inefficient use of time in fact laid the foundation for our adaptability.

Together, these two cornerstones—systemic understanding and strong lateral connectivity—grounded shared consciousness. Both diverged wildly from the MECE, reductionist doctrines we had spent most of our lives upholding, but, in this new setting, against this new threat, they worked. The two strains of shared consciousness also paralleled the ingredients that, at a lower level, had ensured the success of our small teams for decades: "seeing the system" is essentially a macro version of the "purpose" that gives our operators the context and commitment to persevere in volatile situations, and the interteam bonds we used to beat the Prisoner's Dilemma are akin to the trust between team members. As we discussed in chapter 6, this—the realization of team traits at scale; the transformation into a team of teams—was exactly what we needed.

We were not the only ones in need of such solutions.

DECENTRALIZED OPERATIONS WITH COORDINATED CONTROL

On April 1, 2014, Mary Barra, the CEO of General Motors, stepped into a somber, wood-paneled room full of cameras and congressional representatives. Representative Tim Murphy, Republican of Pennsylvania, initiated the proceedings: "I now convene this hearing of the Oversight and Investigation Subcommittee titled 'The GM Ignition Switch Recall: Why Did It Take So Long?' "

This question had been on the public mind since GM had issued a recall of 800,000 vehicles two months earlier. A faulty ignition switch had been used in the Chevy Cobalt and the Pontiac G5; a weak spring meant that small amounts of force applied to the key when in the ignition—a bump by a knee or the tug of a heavy keychain—could cause the engine to turn off. The ignition shutoff also disabled airbag deployment, significantly increasing the danger of the fault.

The costs had been high. The inexpensive Cobalt and G5, thought to be safe, were parents' frequent choice for children's first cars, so many

of the deaths that resulted from this design error were of teenagers. What the public found most shocking, however, was not the existence of the ignition switch issue or even the age of its victims, but the time it had taken GM to address the problem.

"As soon as the Chevy Cobalt rolled off of production lines in 2004," an incredulous Representative Murphy read to the packed hearing room, "customers began filing complaints about the ignition switch. In 2004 and 2005, GM engineers twice considered the problem, and even developed potential solutions to fix it. But GM decided that 'the tooling cost and piece prices are too high,' and that 'none of the solutions represent a business case' … it wasn't until December 2013 that the company finally put the pieces together … almost 10 years after customers first told GM the Cobalt ignition switch didn't work." In those ten years, at least thirteen people died.*

GM appeared to be the ultimate evil corporation. Representative Diana DeGette, a Colorado Democrat, marveled that "the piece [that was responsible for the crashes] cost pennies," yet GM had not replaced it. For four hours, righteously indignant politicians alternately questioned and berated Barra. Press coverage highlighted GM's greed.

The reality, however, was more complex. What seemed like a cold calculation to privilege profits over young lives was also an example of institutional ignorance that had as much to do with management as it did with values. It was a perfect and tragic case study of the consequences of information silos and internal mistrust.

Forty-one-year-old Alfred P. Sloan, already an experienced executive, joined General Motors in 1918. GM founder William C. Durant had snapped up the United Motors Company, Sloan's previous employer, in a spree of corporate acquisitions. It was an exciting time for American business, especially the nascent auto industry. Eight-year-old GM had already established itself as a market leader and was growing fast. But Durant's binge mergers created problems. Though a visionary, he was unable to bind this sprawl of companies together in an orderly fashion.

Alfred D. Chandler later described the company as lacking "any effective over-all administrative structure—clear lines of authority and communication [or] accurate information about the corporation's operations." The brink of bankruptcy loomed on more than one occasion and there was no central view of how its many acquisitions were operating. This led to a duplication of efforts, a lack of distinction between brands, and a fuzzy picture of the company's finances.

Early on, Sloan had a Taylor-at-Midvale epiphany. He saw that GM's problem lay in its organizational structure, or lack thereof. Things were too casual and associative; Durant was applying the old "countinghouse" apprenticeship ways to an entity that was too large and complicated to be run that way. While GM may have had efficient assembly lines on the factory floor, at the managerial level mechanistic order was absent.

Sloan envisioned a MECE, top-down solution. He presented Durant with an "Organizational Study" that proposed a system of separate entities with clearly delineated purviews whose limited interaction would be controlled from the top by central executives. He called it "decentralized operations with coordinated control"—what we now call silos. As historian William Pelfrey notes, "None of it sounds … revolutionary today, [but] it was all untested theory back in 1920."

Durant ignored the plan. A few years later, however, when the founder's frenetic leadership style finally lost him control of the company, the board placed Sloan in charge. He inherited a company whose growing pains had left it overextended and financially weak. As with our Task Force in 2004, however, desperation made those in charge much more willing to take a gamble on a wild proposal.

What followed has been described as "the largest turnaround and the most thorough transformation in business history." Mess was out, and silos were in. Things became standardized, rational, and MECE. The changes saved the company. As Pelfrey summarizes, "Alfred Sloan institutionalized a new culture, one never before attempted in a

systematic way in any corporation … a hierarchical, command-and-control culture."

The results were indisputable. From 1921 until his retirement in 1956, Sloan's tenure at the helm of GM saw unparalleled growth even through the Great Depression (GM was the only automaker for whom this was true). From near bankruptcy, GM saw net sales grow fivefold from 1921 to 1929, moving from a net loss of $38.7 million to a net profit of $248.3 million, and becoming the first company in history to earn a billion dollars in a single year. Its market share "grew from less than 10 percent in 1915 to over 40 percent in 1939." By the time Sloan retired, his firm was producing more than *half* of all the cars sold in America—double the output of Ford and triple that of Chrysler (both of which had led GM before Sloan stepped into the top job).

The efficacy of Sloan's silos was clear. The plan that Durant had rejected "was eventually copied by most corporations and even governmental and nonprofit organizations … forever chang[ing] the way large enterprises and institutions were administered."

Like other large endeavors, including our Task Force, however, GM discovered that what worked in the twentieth century could not hold forever.

Fast-forward to 2013 and GM's silos have a very different legacy. In the decades after Sloan, the company went into decline—in the 1970s it proved unable to react creatively to new competition from Japan, or to respond as technologies and customer preferences changed. With its rigid silos, "GM couldn't keep up," journalist Alex Taylor writes. "As effective as the structure had been in its prime, it was not suited to the changing competitive realities of the 1980s and 1990s, where speed and agility were much more crucial."

Internal rivalries—the consequence of separate divisions and a competitive culture—inhibited communication. Each division maintained its own design and marketing operations and mistrusted other teams. This was one of the problems the silo system had been

put in place to solve, and Sloan's solution had worked well to a point; but like other command-and-control structures, it failed at the threshold of complexity.

The company had little cross-silo information flow. One former executive recounted that at a particular executive meeting, Richard Gerstenberg, GM CEO during the 1970s, requested the formation of a task force to come up with a report on the problem that the executives were currently discussing, only to be told (after an awkward silence) that the meeting he was currently in was the result of a task force he had appointed to investigate the very same issue several months prior.

Ultimately, GM's failures didn't just ding profits—they cost lives. The internal investigation GM finally commissioned in 2014 into the deaths caused by GM's faulty ignition switches exposed deep failures in the organization. Riddled with a lack of contextual awareness and trust, GM's divisions were playing Krasnovian soccer and they were losing at the Prisoner's Dilemma. And customers—largely young drivers—were paying the price.

At a technical level, the core of the ignition switch problem lay in a simple interface failure: a faulty ignition switch that could sometimes disable the engine while the car was in motion, which would in turn prevent airbags from inflating. Understanding and correcting this issue would have been remarkably simple—on par with landing a plane with a faulty gear piston—had the engineers been able to see it. What ended up costing lives, as in the case of United 173, was organizational. At GM, airbags and ignition systems were overseen by two different teams. It would take a decade of demonstrated road failures and tragedies before the organization connected the dots.

In the fall of 2002, engineers noted that the ignition switch would sometimes inadvertently rotate out of the "run" position, but this group was unaware that such rotation would cause airbags not to deploy. On their own, ignition shutoffs were classified as "non-safety issues," and placed on the back burner.

Once reports of accidents began coming in, various divisions held meetings, but no meaningful action was taken. An internal report later concluded that “the engineers … did not know how their own vehicle had been designed. And *GM did not have a process in place to make sure someone looking at the issue had a complete understanding* of what the failure of the Ignition Switch meant for the customer.”

Other communication problems pervaded the company. For instance, though the ignition switch had failed some preproduction tests, the information was not passed on to the authorities who signed off on putting the part into production. Later, when a critical internal component connecting the ignition switch and the airbags was changed, this information was not shared. It was not even added to the central database that tracked alterations, so it took years for engineers and investigators to pinpoint the interface failure. And when GM finally opened an investigation into airbag nondeployments, nobody told the chief investigator about GM’s prior work on the Cobalt issues. The relatively easy-to-fix ignition issue “passed through an astonishing number of committees” without ever being addressed. Like the unopened bags of potential intelligence at our old base in the Baghdad airport, people flagged it, then forgot about it once it was passed on.

This was inextricably linked with the general culture of efficiency and internal competitiveness. Perhaps some employees would have tried harder to relay these issues up the chain of command, or perhaps senior leaders would have investigated the mysterious crashes more thoroughly, had the slogan “cost is everything” not dominated decision making. Like the “Faster, Better, Cheaper” approach that encouraged poor decision making at NASA in the 1970s, this drive to cut out fat inhibited systemic understanding. An engineer interviewed said that the emphasis on cost cutting “permeates the fabric of the whole culture,” leading to a privileging of timing over quality, and a resistance to raising issues. No team wanted to be the group that lagged in efficiency or took too long to fix a problem on account of being overly cautious. An

avoidance of responsibility had become known as the "GM nod"—a staple of survival and job security at the company.

The silos and competitiveness that once made GM the world's most successful company now resulted in spectacular failure. Incredibly, GM's CEO and general counsel did not *learn* about the ignition switch safety issues until January 2014—a full twelve years after the problems were first raised.

As the truth behind the danger of these cars, the ease of the technical fix, and the duration of GM's inaction came to light, the company was vilified. Senator Ed Markey told a press conference, "Two dollars. That's how little this ignition switch could have cost to repair … That was apparently two dollars too much for General Motors." But casting GM's leaders as cold, calculating misers who ran the numbers and determined that the lives lost were worth the profits made—like blaming Captain McBroom for the crash of Flight 173—oversimplifies the situation. GM's byzantine organizational structure meant that nobody—venal or kindly—had the information to make those calculations.

The internal report concluded that from 2006 to 2010, GM demonstrated a "failure to take basic steps." As we've discussed, top-down coordination of siloed efforts works only if those on top actually understand how everything will interact. At GM they no longer did. The products, markets, and supply chains they dealt with had crossed the threshold from complicated to complex. Like NASA before it, GM was running up against the constraints of reductionist management.

On the other side of Detroit, at Ford Motor Company's "Glass House," the towering headquarters in Dearborn, a very different story took shape. As the twentieth century closed, the company was struggling with similar issues to GM's: stiff competition from foreign automakers compounded by a dysfunctional internal culture of need to know and competitiveness. Engineers and designers were rivals; executives and labor hated each other; C-suite leaders felt that their success could

come only at the cost of their peers. It was rife with “the other guy sucks” sentiment.

In 2005, Bill Ford saw the writing on the wall: “We can continue to cut costs and improve our efficiency, but we cannot win the hearts and minds of a new generation with efficiency alone.” The board brought in Alan Mulally as CEO. Mulally had been in charge of Boeing’s commercial airplanes division and had overseen the development of the 777, one of the safest, most advanced, most financially successful passenger planes ever created. He attributed the project’s success to a management approach called “working together” that involved forcing interaction between previously separate groups and cutting-edge technological platforms for ensuring constant, systemic transparency. Boeing deployed a state-of-the-art computer system to maintain a live-updated 3D model so that engineers could see immediately, for instance, whether a hydraulic tube being considered by one design team would interfere with the modification of door hinge components. The ten thousand people on the project were put into “design build teams” (DBTs). Previous projects had been plagued by communication problems; executives who had been at the company for decades lamented the fact that these issues seemed to skyrocket as the company’s operations expanded and its products grew more complicated. But Mulally’s “working together” system created the old-school, teamlike oneness across an enterprise of ten thousand. This was a man who saw the imperative of beating the Prisoner’s Dilemma.

At Ford, Mulally ushered in a campaign he dubbed “One Ford.” As Ford had grown and followed the example set by Sloan’s GM, it had undergone mitosis into hundreds of subdivisions and cliques. Mulally eschewed internal competitiveness, and demanded honesty and transparency. He saw that there were too many small meetings that fractured the organization. He replaced them with a single weekly corporate-level meeting—the “business plan review” (BPR). He allowed no side discussions, secrets, BlackBerry use, or even jokes at others’ expense. As Bryce Hoffman writes in *American Icon: Alan*

Mulally and the Fight to Save Ford Motor Company, "The BPR … would shine a light into the darkest corners of the company … in a company like Ford, the weak went to the wall; only the strong survived. Now they were being told they were all on the same team, and Mulally expected them to act like it."

Mulally took efforts to rope nonexecutive employees into these discussions, people who had "tried unsuccessfully to draw management's attention to inefficiencies in their departments, shortcomings in Ford's business strategy, or ways its products and processes could be improved." Willing to listen, Mulally found himself "inundated with e-mails but responded personally to every message." Mulally's goal at Ford, like ours in Iraq, was to wire all his forces together to produce an emergent intelligence and create shared consciousness.

He forcibly integrated engineers and designers. Japanese automakers had long integrated these disciplines, but at Ford they were separate tribes. As a result, "A designer who knew nothing about thermodynamics might create a great-looking grille only to discover that it did not allow enough air to flow into the engine compartment. An engineer with no knowledge of ergonomics might develop an exhaust system that worked perfectly but was impossible to install." Mulally brought them together, and explicitly emphasized "shared purpose." He extended his embrace of cooperation to Ford's historically fraught relationship with the labor unions, and he worked with rivals GM and Chrysler to make sure the suppliers they all depended on—many of which were struggling—stayed in business. Mulally recognized that the interdependence of the market meant that keeping these suppliers alive would benefit Ford. So antithetical to the cutthroat auto industry was such behavior, Hoffman compares it to "Protestants and Catholics coming together to work on a downtown development plan for Belfast."

As at Boeing, Mulally's solutions worked wonders. While GM and Chrysler were filing for bankruptcy in 2009, Ford, which had been in the most dire straits of the big three automakers, was turning a profit. In

Hoffman's words, "Mulally had done what many inside Ford believed was impossible: He had figured out a way to profitably produce cars in the United States."

Morale hit an all-time high. Though Mulally shared much *more* information across the organization, there were no leaks to the press for the first time in memory. Detroit celebrated Mulally's magic: he was the Automotive Hall of Fame's "Industry Leader of 2009"; *Automobile* magazine's "2010 Man of the Year"; *Fortune*'s "Businessperson of the Year"; and the *Detroit News'* "Michiganian of the Year" (despite the fact that he had only moved there to work with Ford, and spent what free time he had with his family back in Seattle). Jim Cramer, the hyperbolic host of *Mad Money*, declared him "the greatest turnaround artist of all time—not *our* time, *all* time." Wall Street bankers said that "the biggest threat to Ford Motor Company is that Alan Mulally steps off the curb tomorrow and gets nailed by a bus … [the company] can manage everything else."

In his own way, he became as fabled as Sloan—by doing exactly the opposite. The approach worked just as well at Ford as it had at Boeing. As Mulally put it, "Working together always works. It *always* works. Everybody has to be on the team. They have to be interdependent with one another."

Mulally's belief in the universal utility of rejecting silos and embracing interdependence is backed up by Sandy Pentland, an MIT professor who studies the effects of information flow on organizations and communities. Looking at very large data sets, Pentland has found that sharing information and creating strong horizontal relationships improves the effectiveness of everything from businesses to governments to cities. His research suggests that the *collective intelligence* of groups and communities has little to do with the intelligence of their individual members, and much more to do with the connections between them.* "The best ideas," he writes, "come from

careful and continuous social exploration … it is the *idea flow* within a community that builds the intelligence that makes it successful."

"Idea flow" is the ease with which new thoughts can permeate a group. Pentland likens it to the spread of the flu: a function of susceptibility and frequency of interaction. The key to increasing the "contagion" is trust and connectivity between otherwise separate elements of an establishment. The two major determinants of idea flow, Pentland has found, are "engagement" within a small group like a team, a department, or a neighborhood, and "exploration"—frequent contact with *other* units. In other words: a *team of teams*.

Looking at the influence of idea flow on trading Web sites and social networks, Pentland found that collective intelligence stems from unsiloed dissonance: "when the flow of ideas incorporates a constant stream of outside ideas as well, then the individuals in the community make better decisions than they could on their own." Tuning such networks to expose users to more diverse voices could increase returns by more than 6 percent—doubling profitability for all of the social traders.

He has conducted similar studies at a number of companies, outfitting employees with badges that produce detailed, quantitative measures of how people interact (tone of voice, whether people face one another, how much they gesture, rates of interruption, etc.). At a Chicago-area IT consultancy, he collected a billion measurements in one month—1,900 hours of data—and found that engagement was the central predictor of productivity, exceeding individual intelligence, personality, and skill. At a German bank, Pentland examined five teams in the company's marketing division for one month, collecting 2,200 hours of data and sequencing 880 e-mails. The teams that had the highest levels of internal engagement and external exploration had much higher levels of creative output—something that was reinforced by an internal study of his labs at MIT. When Pentland surveyed a number of R&D labs, he found that he could predict the labs' creative output with an extraordinary 87.5 percent accuracy by measuring idea

flow. In the more than two dozen organizations he has studied, Pentland found that interaction patterns typically account for almost half of all the performance variation between high- and low-performing groups.

This is true even in work not seen as requiring creativity and innovation. In 2008, Pentland studied a Bank of America call center. Such centers tend to be standardized and reductionist—up there with manufacturing in terms of the degree to which things are prescribed. Success is measured by AHT (average call handle time), which ideally should be as low as possible. Pentland gave workers sociometric badges all day for six weeks, and measured levels of interaction and engagement. When he shifted the coffee break system from being individual to being team based, interaction rose and AHT dropped, demonstrating a strong link between interaction and productivity. As a result, call center management converted the break structure of all call centers to the same system, and saved $15 million in productivity.

But fostering such engagement is more easily said than done. Almost every company has posters and slogans urging employees to "work together," but simply telling people to "communicate" is the equivalent of Taylor's telling his workers to "do things faster," and stopping there. GM, in addition to the "cost is everything" slogan, had posters everywhere reading "QUALITY ABOVE ALL"—but it was the former, not the latter, that was practiced.

It is necessary, we found, to forcibly dismantle the old system and replace it with an entirely new managerial architecture. Our new architecture was shared consciousness, and it consisted of two elements. The first was extreme, participatory transparency—the "systems management" of NASA that we mimicked with our O&I forums and our open physical space. This allowed all participants to have a holistic awareness equivalent to the contextual awareness of *purpose* we already knew at a team level. The second was the creation of strong internal connectivity across teams—something we achieved

with our embedding and liaison programs. This mirrored the *trust* that enabled our small teams to function.

Shared consciousness is emphatically non-MECE and, at low levels, inefficient. But it is vastly more effective than its predecessor—not just for us, but for the other organizations we have examined. And if it could work in the military (in many ways the archetypal stratified, "need-to-know" domain) and the auto industry (pioneers of assembly lines and silos), it can work almost anywhere.

Alfred Sloan described his system as "decentralized operations with coordinated control." We found that we benefited from the opposite. First, we needed *coordinated operations*, something that necessitated emergent, adaptive intelligence. Shared consciousness achieved this, but it was only the first half. As we would soon find, keeping pace with the speed of our environment and enemy would require something else as well: *decentralized control*. Creating it would be just as taxing, radical, and necessary as shared consciousness. Where shared consciousness upended our assumptions about information and responsibilities, this next step—which we called "empowered execution"—would transform the way we thought about power and leadership.

RECAP

- *Cooperation across silos would be necessary for success*, and while systemic understanding was a valuable first step, we needed to build more trust if we were to achieve the fluid, teamlike cooperation that we needed across our force; we had to overcome the challenge of the Prisoner's Dilemma.
- To this end, we used embedding and liaison programs to create *strong lateral ties* between our units, and with our partner organizations. Where systemic understanding mirrors

the sense of “purpose” that bonds small teams, this mirrored the second ingredient to team formation: “trust.”

- Together, these two elements completed the establishment of *shared consciousness*, something that was vital to our success. As is evidenced by the failures of GM and successes of Ford, the same innovations are sorely needed by many organizations still using rigid silos in an interdependent world.

Chapter 10

Hands Off

I am a light sleeper, so even if I had lain down only an hour earlier, I would hear the dulled thump of hard rubber boots on the wooden walkway outside our hooch. The door would creak open and a couple of knocks would be followed by: “Sir, are you awake?”

“Sure, come on in,” I would reply as I sat up in the metal-frame bunk that spanned the width of my room. Daylight would flood in as the door opened—we worked nights, and I would usually go to sleep soon after dawn. Two people—usually a commander of one of the Task Force’s subordinate units (the SEALs, Army Special Forces, Rangers, etc.), along with operations, or intelligence officers or sergeants—would enter.

I would know from their expressions whether they were notifying me of friendly casualties—comrades, often friends, killed or seriously wounded. More often the news was welcome—the capture of a long-pursued AQI leader, or a positive location for one of our “high-value targets.”

Such news would often be followed by a request for a decision to strike—in daylight that often meant a precision airstrike. Procedures required me, as the commanding general, to approve such airstrikes when U.S. forces were not already engaged in an ongoing firefight because we might risk losing men or endangering civilians.

“Tell me about it,” I would say. The officers would present several pages—printed maps, photographs, and background intelligence on the intended target. I would judge the validity of the case against the

individual, the strength of the intelligence that convinced us of his current location, and whether or not an airstrike was the only viable option. After a few minutes of reading and questions, I would ask my visitors if they wanted me to approve the strike. They would respond with a “why do you think we woke you up?” look and nod yes. I would usually approve their recommendation.

Being woken to make life-or-death decisions confirmed my role as a leader, and made me feel important and needed—something most managers yearn for. But it was not long before I began to question my value to the process. Unless I had been tracking the target the previous night, I would usually know only what the officers told me that morning. I could ask thoughtful questions, but I had no illusions that my judgment was markedly superior to that of the people with whom I worked. As much as I would like to think otherwise, I only rarely had some groundbreaking insight. Most of the time I would simply trust the recommendations made by those who came to get me, as they knew the most about the issue. My inclusion was a rubber stamp that slowed the process, and sometimes caused us to miss fleeting opportunities.

Shared consciousness helped us understand and react to the interdependence of the battlefield where we faced off against AQI. But interdependence was only half of the equation—the other half was speed, and that was still an issue. We had become vastly more thoughtful, integrated, and insightful, but the Task Force still was not fast enough.

A big piece of why we lagged AQI lay in our need to relay decisions up and down the chain of command. Decisions that senior leaders a few decades prior would have been *unable* to oversee now required senior approval. Walking down the hall to grab me might take only a few minutes, but in a fast-paced environment, that could be the difference between operational success and failure—between capturing AQI operatives or letting them slip through our fingers, or between life and death for our operators and for Iraqi civilians. The

requirement to consult me for strikes was symptomatic of a bureaucracy that, over the years, had grown slower and more convoluted as the world around it had become faster.

Paradoxically, the seemingly instantaneous communications available up and down the hierarchy had *slowed* rather than accelerated decision making. Leaders who could be contacted in moments felt compelled to withhold authority on decisions of significant importance (or for which they might ultimately be held responsible). Repeatedly we navigated approval processes that went all the way to the Pentagon or the White House for strikes against terrorist leaders we'd located, for the deployment of forces, or for the implementation of information campaigns. Communications may have been instantaneous but decisions never were. The aggregate effects were crippling.

Within the Task Force, thanks to radical information sharing, we had come a long way with regard to Drucker's exhortation to "do the right thing" rather than "do things right": people at every level of the organization had the information and connectivity to determine what the right thing was, in real time. But, held back by our internal processes, they lacked the ability to act on that determination. We had gotten halfway to transcending Krasnovian soccer and then stopped: we had built an outstanding team bound together by the oneness of trust and purpose and capable of devising, in real time, brilliant, emergent solutions to complex problems, but we still required every player to get written permission from the coach before passing the ball. Meanwhile, senior leaders from Iraq to Washington had in-boxes overflowing with requests to do things that they knew less about than the people on the ground and about which they were often unable to judge effectively.

This organizational impediment, like so many that we had already dismantled, had its roots in the practical problem solving of another era. In this case, it was the age-old relationship between visibility and control.

“ALL UNDER THE GUNS OF HIS SHIPS”

In November 1852, Matthew Calbraith Perry pushed off from the beaches of Norfolk, Virginia, and set sail for Japan. Behind him glided the largest naval force the United States had ever sent overseas. Commodore Perry was endeavoring to “open up” the island nation, which had for two centuries maintained the self-imposed isolation of *sakoku*: no foreigner could enter Japan, nor could any Japanese leave, on penalty of death.

Perry was a lifelong military man. The younger brother of the War of 1812 hero Oliver Hazard Perry, Matthew enlisted in the Navy at age fourteen. For four and a half decades, he fought pirates, policed smugglers, and performed diplomatic duties on behalf of the United States. He commanded the Gulf Squadron during the Mexican War, assisted colonists in West Africa, and served on a Mediterranean tour that aimed to convey American goodwill to the Ottoman Empire. But the trip to Japan was the mission that would make him famous.

Around the time of his promotion to captain in 1837—then the highest rank in the Navy—Perry began to develop an interest in Japan. A forward-looking man, he had campaigned for the widespread adoption of steam-powered ships, and believed in America’s potential as a naval power. But steamships, unlike sailing vessels, required refueling. Perry recognized Japan’s strategic importance as a way station en route to China, and in 1851, he made an official proposal for the expedition.

As it happened, President Millard Fillmore also saw opportunity. The opening of Japan would enable the United States to establish a Pacific steamship line, allowing faster communication and increased trade between Asia and the United States. California had become a state in 1850 and Pacific trade was on the rise, increasing the number of American merchant ships in need of supply points and protection. In 1852, Perry set out from Virginia, empowered by Fillmore with an authority that would be unheard of today.

Simply put, Perry was allowed to do pretty much anything he wanted. As he recorded in his diary shortly before embarking:

> *It is my duty and it certainly is a pleasure to say, that the President and every member of his Cabinet evinced the liveliest interest in the Expedition and extended towards me the utmost kindness and consideration, authorized me the most liberal equipment of the vessels, invested me with extraordinary powers, diplomatic as well as Naval.*

He was not exaggerating. Secretary of State Daniel Webster told Perry that he could "write his own ticket," and a fellow diplomat confirmed that the secretary wished him not only to have "all the strength you desired, but that you should be clothed with full and discretionary powers."

The State Department and the Navy generated a list of U.S. priorities in Japan, including the protection of American sailors and any property that wound up wrecked on Japanese shores, permission for American ships to dock and resupply in Japanese ports, and permission to engage in trade with Japan. But the best way to pursue these aims was left to Perry's discretion. A letter of instruction explained:

> *The Secretary of the Navy will … be pleased to direct the Commander of the Squadron to proceed, with his whole force, to such point on the coast of Japan as he may deem it advisable, and there endeavor to open a communication with the government, and, if possible, to see the Emperor in person, and deliver to him the letter of introduction from the President with which he is charged.*

Deliver the letter he did, in large part thanks to the authority granted to him. He demanded to see only the highest officials, rebuffing Japanese attempts to trick and delay him, and threatening to open fire. Perry supposedly presented Japanese officials with a white flag, explaining that if they chose war over negotiation, they could raise the white flag when they wanted peace, as "victory would naturally belong to the Americans." His bold actions altered the course of Japanese, Asian, and world history.

Carl Builder, a military expert at RAND, summarized Perry's broad authority, writing: "Perry, halfway around the globe and months away from Washington, acted as presidential emissary, ambassador,

commander in chief, secretary of state, and trade commissioner, all under the guns of his ships, as he threatened war and negotiated treaties with feudal Japan."

This freedom of action stood in marked contrast to the situation of Perry's peers in the Army. While Perry was preparing for his expedition in 1852 and pondering how best to use his "full discretionary powers," Ulysses S. Grant was serving as a first lieutenant assigned as the regimental quartermaster for the Fourth Infantry Regiment stationed in San Francisco. The commander of the Pacific Division, Brigadier General Ethan Allen Hitchcock, had been given—by Army standards—a fairly expansive mission and broad authority to reorganize federal troops in California and protect gold rushers and settlers from Indian attacks.

But the expeditionary nature of the mission did not prevent the Department of the Army from sending very specific instructions about how it wanted things done: The secretary of war told Hitchcock how to save funds, and ordered him to have his soldiers plant gardens instead of purchasing produce. The Department of the Army sent an inspector general to California in July 1852 to inspect the construction of new forts and hold junior officers accountable for expenses incurred.

By 1864, Grant was a lieutenant general commanding the Union Army. The command and control he exercised in a routine communication with Major General George Meade, his subordinate and the commander of the Army of the Potomac, is a world apart from the instructions given to Perry:

HEADQUARTERS ARMIES OF THE U. S.,

May 7, 1864, 6.30 A.M.

MAJOR-GENERAL MEADE, Commanding A. P.

Make all preparations during the day for a night march to take position at Spottsylvania C. H. with one army corps, at Todd's Tavern with one, and another near the intersection of the Piney Branch and Spottsylvania road with the road from Alsop's to Old Court House. If this move is made the trains should be thrown forward early in the morning to the NY River.

I think it would be advisable in making the change to leave Hancock where he is until Warren passes him. He could then follow and become the right of the new line. Burnside will move to Piney Branch Church. Sedgwick can move along the pike to Chancellorsville and on to his destination. Burnside will move on the plank road to the intersection of it with the Orange and Fredericksburg plank road, then follow Sedgwick to his place of destination.

All vehicles should be got out of hearing of the enemy before the troops move, and then move off quietly.

It is more than probable that the enemy concentrate for a heavy attack on Hancock this afternoon. In case they do we must be prepared to resist them, and follow up any success we may gain, with our whole force. Such a result would necessarily modify these instructions.

All the hospitals should be moved to-day to Chancellorsville.

U. S. GRANT,
Lieut.-General.

The difference between Perry's open purview and the specificity of instruction imposed on Meade was not a function of rank. As the commander of the Army of the Potomac, Meade would probably have outranked Perry,* and the force he commanded was more than two hundred times the size of Perry's.

What caused the divergence between Perry's freewheeling and the Army's regimented command and control? Varying levels of competence? Different approaches to discipline? The reason was actually much more pragmatic: The Army controlled its officers because it *could*. Army operations took place on land, and thanks to the postal service, Ulysses S. Grant could receive regular detailed updates and send actionable replies. He *could* give directions, so he did—transparency and communication together bred control. The Navy, on the other hand, couldn't reach its captains. As Joseph Conrad explained: "A ship at sea is a world in herself and in consideration of the protracted and distant operations of the fleet units the Navy must place great power, responsibility, and trust in the hands of those leaders chosen for command."

The variable separating Commodore Perry from Grant was the availability of information and communication. The inability to communicate with a far-off fleet demanded that Perry be given levels of

autonomy he would never have realized as a commander of land forces.

Predictably, advances in live communications have significantly curtailed the powers and responsibilities enjoyed by Navy commanders. Although there remain vestigial cultural differences between the forces,[†] Perry's contemporary equivalents are kept under Grant-like wraps. This is for seemingly good reason: Why have an admiral act on behalf of the president when the president can pick up the phone and call any leader in the world? Why have a ship's captain make decisions in a vacuum when you can have his (presumably older, wiser, more experienced) superiors monitor his actions and provide instruction?*

In short, when they can *see* what's going on, leaders understandably want to *control* what's going on. Empowerment tends to be a tool of last resort. We can call this tethering of visibility to control the "Perry Principle."

Taylor's contemporary Henri Fayol enumerated the "five functions of management" as "planning, organizing, commanding, coordinating, and controlling." The last three become much easier to attend to when you have more information, creating a cycle of seeking ways to gather and centralize more information in order to push more and more efficient directives to the organization. The function of workers is to feed this cycle and await the next commands.

Today's managers have access to all kinds of information about their employees that they lacked just a few years ago. Communication and monitoring technologies like those we used in Iraq, or Sandy Pentland used in his experiments on idea flow, enable higher-ups to analyze macro trends in their markets to keep tabs on how many minutes an individual employee spends resting versus working. Automated systems at restaurants monitor waiters' movements, tracking every ticket, dish, and drink, searching for patterns that suggest efficacy as

well as those correlated to theft. All of this enables the habitual centralization of power.

In Iraq, senior leaders like me enjoyed unprecedented insight into every second and square foot of our Task Force's endeavors. I could watch operations in real time and speak to operators in the middle of a firefight (although I never did, for reasons that will be explained later in the chapter). On many occasions we were able, almost instantly, to link together Naval Headquarters in Bahrain, ships operating off the Horn of Africa, Central Command in Tampa, Florida, the Pentagon, our teams on the ground in Africa, and other supporting elements to coordinate sensitive actions. This led us to tighten our grasp on decision making. But as we continued to watch and learn from AQI, we asked ourselves whether perhaps something had changed. We had access to more real-time information than any force in the history of warfare, but to what end?

While military leaders a century ago yearned for the ability to see and control more of their battlefield, their heirs today have been inundated with too much of a good thing. At our headquarters, I had simultaneous access to live updates and real-time video from offices and operations across the world, and was connected to almost every decision of consequence. This was great for establishing holistic awareness, but it also created a nightmare of paperwork and approvals—time that could otherwise have been spent solving real problems.

Like other staples of managerial thinking, the Perry Principle made sense in a world that no longer exists, but offers little help when the velocity and volume of decisions needing to be made so exceed the capabilities of even the most gifted leaders that empowerment of those on lower rungs is simply a necessity.

In Iraq, we could see that our sharing of information was an effective tool. But the centralization of control that came with such access to tactical data was another question entirely. Centuries of technological and managerial developments suggested that the Perry Principle of

extending control, and empowering only as a last resort, was a good rule. But the rules of engagement had changed.

I began to reconsider the nature of my role as a leader. The wait for my approval was *not* resulting in any better decisions, and our priority should be reaching the best possible decision that could be made *in a time frame that allowed it to be relevant*. I came to realize that, in normal cases, I did not add tremendous value, so I changed the process. I communicated across the command my thought process on decisions like airstrikes, and told them to make the call. Whoever made the decision, I was always ultimately responsible, and more often than not those below me reached the same conclusion I would have, but this way our team would be empowered to do what was needed.

The practice of relaying decisions up and down the chain of command is premised on the assumption that the organization has the time to do so, or, more accurately, that the cost of the delay is less than the cost of the errors produced by removing a supervisor. In 2004 this assumption no longer held. The risks of acting too slowly were higher than the risks of letting competent people make judgment calls.

We concluded that we would be better served by accepting the 70 percent solution today, rather than satisfying protocol and getting the 90 percent solution tomorrow (in the military you learn that you will never have time for the 100 percent solution).

I did not expect a bad outcome, but I watched to see how we would do.

"USE GOOD JUDGMENT IN ALL SITUATIONS"

The Ritz-Carlton hotel chain has spent a century building a reputation for quality, luxury, and reliability. Through recessions, depressions, corporate mergers, and world wars, the brand—originally a restaurant operated on high-end cruise ships, then a hotel that earned founder César Ritz the sobriquet "king of hoteliers and hotelier to kings"—has remained at the top of the food chain. Today, the company operates

eighty-five hotels in thirty countries and regularly tops the Zagat lists for its hotels and dining. In particular, it has earned a reputation for offering outstanding service. It is César Ritz who is credited with the line, now a universal law in the hospitality industry, that "the customer is always right." Nearly fifty thousand executives from other companies have traveled to the Ritz-Carlton Learning Institute and Ritz-Carlton Leadership Center to learn how they too can achieve such quality of service.

One might think that this is a result of careful oversight and exacting requirements drilled into the Ritz's customer-facing employees—that outstanding service arises from a set of painstakingly detailed protocols. In fact, the company's approach to HR is famous for the freedom it grants. Employees can spend up to $2,000 to satisfy guests or deal with issues that arise. A Harvard Business School case study detailed this and other extraordinary policies, such as the fact that the Ritz trains all its employees to "break away" from their duties if a guest needs something special, and encourages employees to "use their empowerment." One of the basics that employees are given is "Instant guest pacification is the responsibility of each employee. Whoever receives a complaint will own it, resolve it to the guest's satisfaction, and record it."

A similar approach was taken at Nordstrom, the department store chain known for its "almost mythic levels of assistance" to customers. New employees are issued a card that reads:

WELCOME TO NORDSTROM.

We're glad to have you with our Company. Our number one goal is to provide outstanding customer service. Set both your personal and professional goals high. We have great confidence in your ability to achieve them, so our employee handbook is very simple. We have only one rule.

Flipping the card over reveals the company's single rule:

Our One Rule: Use good judgment in all situations.

Please feel free to ask your department manager, store manager, or Human Resources officer any question at any time.

Since the 1980s, when companies began experimenting with "empowerment"—the buzzword that summarizes what we called "decentralization of decision-making authority"—myriad studies in the social sciences have concluded that this psychological difference of empowerment has a very real impact. Jay Conger and Rabindra Kanungo's 1988 paper "The Empower Process: Integrating Theory and Practice" noted that empowerment improved employee satisfaction. Kenneth W. Thomas and Betty A. Velthouse identified the decentralization of authority as creating "intrinsic task motivation." Studies have found this effect in domains ranging from nursing in China to five-star hotels in Turkey.

The "scientific management" model, by contrast, was described by one of Taylor's disciples as resting "primarily upon two important elements":

> *1st: Absolutely rigid and inflexible standards throughout your establishment.*
> *2nd: That each employee of your establishment should receive every day clear-cut, definite instructions as to just what he is to do and how he is to do it, and these instructions should be exactly carried out, whether they are right or wrong.*

Today, even the most clockwork of tasks—like factory floor labor and other mechanical tasks—can benefit from some degree of innovation and creative thinking. The less people's jobs can be automated, the more you need them to take initiative, innovate, and think creatively. But despite the evidence of all these studies, few managers are willing to take this leap: today, only 20 percent of workers feel empowered and act resourcefully; most feel disenfranchised or locked down.

With rising interdependence and unpredictability, the costs of micromanagement are increasing. Rosabeth Moss Kanter of Harvard Business School, a pioneer in the study of empowerment in the workplace, sums up the imperative of extending authority downward: As world events become ever more disruptive, "the number of 'exceptions' and change requirements go up, and companies must rely on more and more of their people to make decisions on matters for

which a routine response may not exist." She concludes, "The degree to which the opportunity to use power effectively is granted to or withheld from individuals is one operative difference between those companies which stagnate and those which innovate."

In other words, as our environment erupts with too many possibilities to plan for effectively, we *must* become comfortable sharing power. In a *Harvard Business Review* article, Josh Bernoff and Ted Schadler argue, "In a world where one angry tweet can torpedo a brand, corporations need to unleash their employees to fight back." Citing United Airlines' sluggish response to Dave Carroll's broken guitar, both before and after he posted his video, they assert that a new approach is needed—one in which team players do not have to consult with the coach before taking a shot. United is just one of many companies to suffer "viral" scandals: blogger Heather Armstrong took to Twitter to vent her frustration with Maytag; Greenpeace assaulted Nestlé's Facebook page about their environmental policies; Comcast found itself in the midst of unwanted attention after a subscriber posted a recording of his conversation with a representative who refused to let him cancel his service. The Internet has made individual consumers vastly more powerful—as Bernoff and Schadler observe, "anyone with a smartphone or a computer can inflict lasting brand damage." But for the most part, employees charged with responding to consumer complaints remain more restricted than ever by the Perry Principle; the organization has, in most cases, not evolved to mimic its protean environment. The asymmetry is a recipe for disaster.

If the first United representative Carroll had spoken to had had the authority to address his issue, the company could have avoided embarrassment, and might have acquired an advocate. Electronics chain Best Buy has tried to do just that. Using a system called Twelpforce, employees were enabled to respond on Best Buy's behalf on Twitter. When an iPhone bought from Best Buy broke and the consumer started tweeting that the in-store staff did not do him justice (instead of offering him a replacement iPhone they gave him a

BlackBerry), a customer service representative saw the tweet, swooped in, responded, and arranged for him to have an iPhone the next day.

Best Buy, Bernoff and Schadler write, was

> *just as susceptible to online customer complaints as any other company, but because it's run differently, it can respond differently. … Far better than trying to prevent such activity is to acknowledge that your employees have technology power … armed with technology, your employees can build solutions at the speed of today's connected customers.*

Kanter foresaw that increased disruption and unpredictability would necessitate increased agility and adaptability which could be achieved only by loosening control. AQI had empowered its operatives, not only with technology, but with decision-making authority, while our operators struggled to respond under codes designed to align with the Perry Principle. This is just what we wanted in the Task Force: we accepted that divergences from plan were inevitable—we wanted to improve our ability to respond to them. We needed to empower our teams to take action on their own.

"AS LONG AS IT IS NOT IMMORAL OR ILLEGAL"

As an instinctive perfectionist, it pained me to do it, but I began pushing authority further down the chain of command. Empowerment did not always take the form of an overt delegation; more often, my more self-confident subordinates would make decisions, many far above their pay grade, and simply inform me. My response, often very publicly conveyed during our O&I, typically endorsed their initiative, and created a multiplier effect, whereby more and more people, seeing the success of their peers, would begin taking more matters into their own hands.

Like the directors of Ritz-Carlton and Nordstrom, I found that, by ignoring the Perry Principle and containing my desire to micromanage, I flipped a switch in my subordinates: they had always taken things seriously, but now they acquired a gravitas that they had not had before. It is one thing to look at a situation and make a recommendation

to a senior leader about whether or not to authorize a strike. Psychologically, it is an entirely different experience to be charged with *making* that decision. Junior officers, instead of handing the decision to me and providing guidance, were now entrusted with the responsibility of a decision that was, quite literally, often a matter of life and death.

Eventually a rule of thumb emerged: "If something supports our effort, as long as it is not immoral or illegal," you could do it. Soon, I found that the question I most often asked my force was "What do you need?" We decentralized until it made us uncomfortable, and it was right there—on the brink of instability—that we found our sweet spot.

There were growing pains. Some subordinate leaders tried to hold authority at their level, and on a number of occasions I had to confirm to partner agencies or units that a decision voiced by someone in the Task Force had my approval. Often, I was hearing about the decision for the first time, but I cannot remember a time when I failed to support it.

On the whole, our initiative—which we call "empowered execution"* —met with tremendous success. Decisions came more quickly, critical in a fight where speed was essential to capturing enemies and preventing attacks. More important, and more surprising, we found that, even as speed increased and we pushed authority further down, the *quality* of decisions actually went *up*.

We had decentralized on the belief that the 70 percent solution today would be better than the 90 percent solution tomorrow. But we found our estimates were backward—we were getting the *90 percent solution today* instead of the *70 percent solution tomorrow*.

This took us by surprise and upended a lot of conventional assumptions about the superior wisdom of those at the top. Understanding the underlying causes of this unexpected outcome proved essential to sustaining and enhancing it.

A piece of this is the psychology of decision making. An individual who makes a decision becomes more invested in its outcome. Another factor was that, for all our technology, our leadership simply did not

understand what was happening on the ground as thoroughly as the people who were there. The ability to see video footage and hear gunfire from an operation as it unfolded was a tremendous asset, but a commander on the ground can comprehend the complexity of a situation in ways that defy the visual and audible: everything from temperature and fatigue to personalities. I had been a baseball pitcher in my youth and knew that often the man on the mound knows what he's best postured to throw.

But the key reason for the success of empowered execution lay in what had come *before* it: the foundation of shared consciousness. This relationship—between contextual understanding and authority—is not new.

"EVERY CAPTAIN WAS A NELSON"

During this period I found myself pondering an exceptional example of the Navy's traditional embrace of empowerment, and asking myself what exactly made it work. On my daily runs parallel to Balad's long runway, I would listen to the audiobook of Adam Nicolson's *Seize the Fire* about Admiral Nelson. Nelson's genius as a leader had been his nurturing of the independent decision-making abilities of his subordinates—described by Nicolson as "entrepreneurs of battle." As we discussed in chapter 1, Nelson's wily perpendicular attack at Trafalgar created the chaos in which his force could thrive and his enemies—trained to follow flags and bearing little knowledge of the overall strategy—flailed. Nelson had told his commanders, "No captain can do very wrong if he places his ship alongside that of the enemy," but that broad authority could have gone terribly wrong if he had not spent decades cultivating their individual qualities as decision makers, and if they had lacked an overall understanding of the force and the battle as a whole. This was Nelson's equivalent of shared consciousness, and it was only because of it that his captains could thrive as empowered agents in a chaotic mêlée.

For most of my career in the Army, my mess dress uniform bore light blue lapels that signaled I was in the infantry. Artillery wore red, Special Forces wore green, tankers wore yellow. Our uniforms—stripes, badges, tabs, and insignia—announced our rank, qualifications, and experience, our box in the org chart. They also bolstered our sense of identity. Of course, I believed that every branch mattered, but for twenty-four and a half years after I graduated from West Point, I *knew* blue mattered a bit more.

But when I was promoted to brigadier general in January 2001, my lapels changed to black—indistinguishable from those of generals who had ascended through the medical corps, engineers, or aviation. A general is expected to have *general knowledge* of the army—blue, red, green, and everything in between. It is *because* they have this general knowledge that leaders can be trusted to make major decisions.

In 2004 we were asking every operator to think like someone with black lapels—in other words, like Nelson's captains. We were working to pump general-officer information and awareness throughout our ranks, giving people used to tight orders and limited visibility the insights once reserved for people at the top. In the old model, subordinates provided information and leaders disseminated commands. We reversed it: we had our leaders provide information so that subordinates, armed with context, understanding, and connectivity, could take the initiative and make decisions. Shared consciousness meant that people at every level on our org chart now enjoyed access to the kind of perspective once limited to senior leaders.

The term "empowerment" gets thrown around a great deal in the management world, but the truth is that simply taking off constraints is a dangerous move. It should be done only if the recipients of newfound authority have the necessary sense of perspective to act on it wisely.

At Trafalgar, Nelson's redistribution of authority was put to the ultimate test: A few hours into the battle, a sharpshooter on the *Redoutable*—the enemy ship with which Nelson's *Victory* had locked masts—fired a

shot that hit Nelson in the shoulder and became lodged in his back. The wound was incapacitating and clearly fatal. While Nelson's men carried their dying admiral belowdecks, the battle reached its climax. In the raging noise and violence, few noticed his absence. He died about three hours later, having lived just long enough to know of his victory.

"To any other Nation the loss of a Nelson would have been irreparable," said French vice-admiral Villeneuve, after the battle, "but in the British Fleet off Cadiz, every Captain was a Nelson."

We wanted our force to exhibit the entrepreneurial mind-set of those British captains, so we nurtured holistic awareness and tried to give everyone a stake in the fight. When we stopped holding them back—when we gave them the order simply to place their ship alongside that of the enemy—they thrived.

THE VISIBLE MAN MODEL OF DECISION MAKING

He was just fifteen inches tall and made of plastic, but he left an enduring impression on me. The brainchild of Marcel Jovine, a former Italian soldier who came to America as a POW in World War II, the Visible Man was a plastic anatomical toy introduced by the Renwal Products Company in the fall of 1958. He cost $4.98 and his clear plastic body held a skeleton and organs that could be removed and replaced.

My older brother Scott had one and I remember concluding that because we could see through the transparent "skin" of the body, we could get a general idea of what was going on inside. I thought about how much easier doctors' jobs would be if real humans were similarly designed; seeing might save a lot of exploratory surgery.

Though I never caught anyone, I suspect that eye rolling was common when I referred time and again to the Visible Man during the Task Force video teleconferences. I told subordinates that if they provided me with sufficient, clear information about their operations, I would be content to watch from a distance. If they did not, I would describe in graphic terms the "exploratory surgery" necessary to gain

the situational awareness I needed. They were free to make all the decisions they wanted—as long as they provided the visibility that, under shared consciousness, had become the standard.

By 2006 we had transformed the way we observed, assessed, acted, and interacted in all our operations.

At Balad, our screens usually streamed FMV (full-motion video) transmitted down from a Predator UAV or manned surveillance aircraft providing a real-time view of somewhere in Iraq, Afghanistan, or elsewhere in the region. Sometimes instead they would display an operations log or chat room reflecting the latest updates provided by Task Forces across the region. We would watch our helicopters land in a cloud of dust and operators move swiftly toward their targets. Explosions could temporarily "white out" the screen and small arms fire looked like fireflies briefly illuminating the night. Logs would mirror what we saw: "Aircraft on ground," "Target contained (surrounded)," and hopefully "Jackpot," which indicated that the individual targeted on the mission had been captured, or sometimes killed.

My laptop had special software that enabled me to monitor (and speak to) any part of our force on internal radio nets. In real time I could see what was happening, hear the operators' internal discussions, and read their ongoing reporting. For a closet micromanager, it was a new opportunity to pull the puppet strings from great distances.

But I did not do that. I never told operators what to do on a raid; it would have been a mistake. I'd learned that seeing the conditions on the ground, hearing the tone and content of a radio call—having situational awareness of what was happening, and why—helped me do my part of the task better—not to reach in and do theirs. It was counterintuitive, but it reflected exactly the approach to decision making that we needed to pervade our force: "Eyes On—Hands Off."

I was most effective when I supervised processes—from intelligence operations to the prioritization of resources—ensuring that we avoided

the silos or bureaucracy that doomed agility, rather than making individual operational decisions.

When we tried to do the same things tighter and faster under the constraints of the old system, we managed to increase the number of raids per month from ten to eighteen; by 2006, under the new system, this figure skyrocketed to three hundred. With minimal increases in personnel and funding, we were running *seventeen times faster*. And these raids were more successful. We were finding a higher percentage of our targets, due in large part to the fact that we were finally moving as fast as AQI, but also because of the increased quality of decision making.

"Eyes On—Hands Off" represented a complete reverse of the Perry Principle: if we could see it, we would *not need* to try to control it. As it turned out, this would also require a rethought approach to personal leadership.

RECAP

- Traditionally, organizations have implemented *as much control over subordinates as technology physically allowed*.
- New technologies offer today's leaders unprecedented opportunities to gather information and direct operations, but because of the speed necessary to remain competitive, centralization of power now comes at great cost. While shared consciousness had helped us overcome the *interdependence* of the environment, *speed*, the second ingredient of complexity, still posed a challenge.
- Effective adaptation to emerging threats and opportunities requires the *disciplined practice of empowered execution*. Individuals and teams closest to the problem, armed with

unprecedented levels of insights from across the network, offer the best ability to decide and act decisively.

Chapter 11

Leading Like a Gardener

The cramped bridge of the *Red October*, a new Soviet nuclear submarine with stealthlike capability, is tense with anticipation as a torpedo knifes through the water toward it. Impact means instant death.

FIRST OFFICER VASILI BORODIN: Torpedo impact, 20 seconds.

His serious but utterly calm commander, Captain Marko Ramius, played by Sean Connery with a distinguished beard and tailored black navy tunic, seemingly ignores Borodin's warning. He turns to CIA analyst Jack Ryan (Alec Baldwin):

RAMIUS: *[to Ryan]* What books?

RYAN: Pardon me?

Talking about books at this moment seems like lunacy.

RAMIUS: What books did you write?

RYAN: I wrote a biography of, of Admiral Halsey, called *The Fighting Sailor* about, uh, naval combat tactics …

RAMIUS: I know this book!

Ramius appears totally engrossed with the book.

BORODIN: Torpedo impact …

Amazingly, Ramius continues the discussion.

RAMIUS: Your conclusions were all wrong, Ryan …

BORODIN: … 10 seconds.

RAMIUS: … Halsey acted stupidly.

Predictably, though others on the bridge assume they are doomed, at the last second Ramius cleverly prevents their demise by steering his submarine directly toward the oncoming torpedo, causing it to strike before its warhead is armed. It is the apogee of heroic leadership—omniscient, fearless, virile, and reassuring. It is also almost entirely unrealistic. While some leaders possess extraordinary gifts and project a charismatic presence, in a career alongside accomplished leaders, I never met a Marko Ramius—or anyone remotely close to the character author Tom Clancy created in *The Hunt for Red October*.

WHY TRADITIONAL LEADERS STRUGGLE

We gravitate toward "heroic leaders" who combine qualities we associate with leadership, such as wisdom and physical courage. For a generation after his 1815 triumph over Napoleon at the Battle of Waterloo, Arthur Wellesley, the Duke of Wellington, embodied this concept. Images of Wellington on horseback, deftly maneuvering troops, established an ideal: the leader as all-knowing puppet master, crafting brilliant strategies and distributing precise commands.

The organization as a rigidly reductionist mechanical beast is an endangered species. The speed and interconnected nature of the new world in which we function have rendered it too stupid and slow to survive the onslaught of predators. In some cases, it simply lumbers into tar pits, lacks the strength to free itself, and slowly dies. The traditional heroic leader may not be far behind. Yet even in our new environment, we still retain high, often unrealistic, expectations of leaders. We publicly demand high-level strategic vision and an unerring ability to anticipate broad market trends, but we simultaneously celebrate CEOs for encyclopedic mastery of every aspect of their business. We routinely ask government leaders if they knew the smallest details of an issue, and if not, why they didn't. We expect our leaders to know everything, knowing full well that the limits of technology and the human brain won't allow it.

As we saw with Commodore Perry and General Grant, leadership techniques have traditionally varied with physical proximity. Up close, as long as things moved at a reasonably slow speed, a competent manager could control a military formation or an assembly line. As distances grew greater, even energetic leaders found it impossible to micromanage what they couldn't see. Railroads, telegraph, automobiles, and radio made it easier for leaders to influence developments from afar, but real control remained elusively out of reach. Even at the pace of horses or steamships, local events could develop faster than distant decision makers could monitor, assess, decide, and act.

Recent technology might appear to have closed the gap between leaders and subordinates. Armed with unprecedented amounts of data, CEOs, politicians, and bureaucrats can peer into what is happening almost as it occurs. As we discussed, this information can seduce leaders into thinking that they understand and can predict complex situations—that they can see what *will* happen. But the speed and interdependence of our current environment means that what we cannot know has grown even faster than what we can.

The doctrine of empowered execution may at first glance seem to suggest that leaders are no longer needed. That is certainly the connection made by many who have described networks such as AQI as "leaderless." But this is wrong. Without Zarqawi, AQI would have been an entirely different organization. In fact, due to the leverage leaders can harness through technology and managerial practices like shared consciousness and empowered execution, senior leaders are now more important than ever, but the role is very different from that of the traditional heroic decision maker.

In the Task Force, we found that, alongside our new approach to management, we had to develop a new paradigm of personal leadership. The role of the senior leader was no longer that of controlling puppet master, but rather that of an empathetic crafter of culture.

Within such complexity, leaders themselves can be a limiting factor. While the human capacity for thought and action is astounding, it is never quite enough. If we simply worked more and tried harder, we reason, we could master the onslaught of information and "urgent" requirements.

But of course we can't. Author Dan Levitin explains:

> *In 2011 Americans took in five times as much information every day as they did in 1986—the equivalent of 175 newspapers. During our leisure time, not counting work, each of us processes 34 gigabytes or 100,000 words every day. The world's 21,274 television stations produce 85,000 hours of original programming every day, as we watch an average of 5 hours of television each day, the equivalent of 20 gigabytes of audio-video images.*

Where once an educated person might have assumed she was at least conversant with the relevant knowledge on a particular field of study, the explosion of information has rendered that assumption laughable.

One solution to information overload is to increase a leader's access to information, fitting him with two smartphones, multiple computer screens, and weekend updates. But the leader's access to information is not the problem. We can work harder, but how much can we actually take in? Attention studies have shown that most people can thoughtfully consider only one thing at a time, and that multitasking dramatically degrades our ability to accomplish tasks requiring cognitive concentration. Given these limitations, the idea that a "heroic leader" enabled with an über-network of connectivity can simultaneously control a thousand marionettes on as many stages is unrealistic.

CHESS MASTER TO GARDENER: THE LEADERS WE NOW NEED

Considered by many to be the ultimate strategic contest between two players, the game of chess originated in eastern India in the sixth century. Once considered a game for nobility, chess was thought to be an effective tool for teaching strategic thinking to future leaders.

The various pieces—king, queen, rook, knight, bishop, and pawn—behave differently. The pawns, the most numerous, are the least maneuverable. The queen is the most maneuverable and thus the most lethal. The king, while relatively weak, is the figure that must be preserved. None can think or act for themselves. None eye the board from their unique vantage point and suggest moves. None cry warnings of danger. The chess player is all by herself to observe, decide, and act.

From a distance, the Task Force's fight in Iraq in 2004 looked like chess, more particularly the rushed *bullet* version of the game, where players have time constraints for each move. Empowered with an extraordinary ability to view the board, and possessing a set of units with unique capabilities, I was tempted to maneuver my forces like chess pieces against AQI. I could be Bobby Fischer or Garry Kasparov, driving my relentlessly aggressive campaign toward checkmate.

But the chess metaphor quickly broke down. Even in its most rapid form, chess is still a rigidly iterative game, alternating moves between opponents. War in 2004 followed no such protocol. The enemy could move multiple pieces simultaneously or pummel us in quick succession, without waiting respectfully for our next move.

They did so with such speed that it was soon apparent that their changes were not the outcome of deliberate decision making by seniors in the hierarchy; they were organic reactions by forces on the ground. Their strategy was likely unintentional, but they had leveraged the new environment with exquisite success.

Our teams were crafted to be chess pieces with well-honed, predictable capabilities. Our leaders, including me, had been trained as chess masters, and we hoped to display the talent and skill of masters. We felt responsible, and harbored a corresponding need to be in control, but as we were learning, we actually needed to let go.

I leaned back on what I'd learned—not in a classroom at West Point, or on a range at Fort Benning, but much earlier.

In the summer of 1966, soon after my father returned from his first tour in Vietnam, my parents bought a new house. The large, early-1900s brick home gave my parents, the six kids, Noche the dog, and a constant stream of visitors room to spread out. My mother, Mary, a perpetual motion machine, used part of the yard to take up gardening. No flowers—Mom was about measurable output. She grew fruit and vegetables. Beans were aligned with military precision, tomatoes on the right flank, lettuce in reserve. Napoleon would have approved, though Taylor would have moved the compost pile (my responsibility) near the fig tree, slightly closer to the squash lines, to shave seconds off labor.

There were challenges. The first year my mother overestimated the number of zucchini plants she needed and the family suffered through every permutation of zucchini dish except ice cream. But overall the garden was a rousing success. My contribution was spotty and occasional, but I did watch and learn.

If the garden is well organized and adequately maintained, and the vegetables are promptly harvested when ripe, the product is pretty impressive. The gardener creates an environment in which the plants can flourish. The work done up front, and vigilant maintenance, allow the plants to grow individually, all at the same time.

Years later as Task Force commander, I began to view effective leadership in the new environment as more akin to gardening than chess. The move-by-move control that seemed natural to military operations proved less effective than nurturing the organization—its structure, processes, and culture—to enable the subordinate components to function with “smart autonomy.” It wasn’t total autonomy, because the efforts of every part of the team were tightly linked to a common concept for the fight, but it allowed those forces to be enabled with a constant flow of “shared consciousness” from across the force, and it freed them to execute actions in pursuit of the overall strategy as best they saw fit.

Within our Task Force, as in a garden, the outcome was less dependent on the initial planting than on consistent maintenance.

Watering, weeding, and protecting plants from rabbits and disease are essential for success. The gardener cannot actually “grow” tomatoes, squash, or beans—she can only foster an environment in which the plants do so.

THE GARDENER

Although I recognized its necessity, the mental transition from heroic leader to humble gardener was not a comfortable one. From that first day at West Point I’d been trained to develop personal expectations and behaviors that reflected professional competence, decisiveness, and self-confidence. If adequately informed, I expected myself to have the right answers and deliver them to my force with assurance. Failure to do that would reflect weakness and invite doubts about my relevance. I felt intense pressure to fulfill the role of chess master for which I had spent a lifetime preparing.

But the choice had been made for me. I had to adapt to the new reality and reshape myself as conditions were forcing us to reshape our force. And so I stopped playing chess, and I became a gardener. But what did gardening actually entail?

First I needed to shift my focus from moving pieces on the board to shaping the ecosystem. Paradoxically, at exactly the time when I had the capability to make more decisions, my intuition told me I had to make *fewer*. At first it felt awkward to delegate decisions to subordinates that were technically possible for me to make. If I could make a decision, shouldn’t I? Wasn’t that my job? It could look and feel like I was shirking my responsibilities, a damning indictment for any leader. My role had changed, but leadership was still critical—perhaps more than ever.

Creating and maintaining the teamwork conditions we needed—tending the garden—became my primary responsibility. Without my constantly pruning and shaping our network, the delicate balance of information and empowerment that sustained our operations would atrophy, and our success would wither. I found that only the senior

leader could drive the operating rhythm, transparency, and cross-functional cooperation we needed. I could shape the culture and demand the ongoing conversation that shared consciousness required.

Leading as a gardener meant that I kept the Task Force focused on clearly articulated priorities by explicitly talking about them and by leading by example. It was impossible to separate my words and my actions, because the force naturally listened to what I said, but measured the importance of my message by observing what I actually did. If the two were incongruent, my words would be seen as meaningless pontifications.

Communicating priorities and cultural expectations to our team of teams spread across multiple continents was a challenge. Written guidance was essential, but memos competed with the flood of text that engulfed all of us every day. To post brief updates and observations, I used a secure Web-based portal accessible to everyone, carefully composing each memo to ensure that it reflected not only my thoughts, but also my "voice." I tried to remember "less is more," and stuck to a few key themes. Experience had taught me that nothing was heard until it had been said several times. Only when I heard my own words echoed or paraphrased back to me by subordinates as essential "truths" did I know they had been fully received.

As a leader, however, my most powerful instrument of communication was my own behavior. As a young officer I had been taught that a leader's example is always on view. Bad examples resonate even more powerfully than good ones. In situations where senior leaders can cloister themselves behind walls or phalanxes of aides, emerging only when their ties are straight, their hair coiffured, and their words carefully chosen, controlling the signal might be possible. But in a world of tweets and 24/7 news coverage, it is not. I didn't even attempt to hide.

Instead, I sought to maintain a consistent example and message. Our daily Operations and Intelligence (O&I) video teleconference

became key to my overall communications effort. Although the information exchanged was the baseline “product,” the O&I served as my most effective leadership tool as well, because it offered me a stage on which to demonstrate the culture I sought.

Early in the fight I recognized that although I could theoretically command from any location, remaining deployed and appearing at the O&I while wearing my combat uniform against an austere plywood backdrop communicated my focus and commitment. I could demand effort from the force, or support from Washington, D.C., with greater legitimacy than from any other vantage.

I also demonstrated this new paradigm of leadership by demanding free-flowing conversation across the force during the O&I. The technical hurdles of creating a video teleconference for more than seventy locations, many of them isolated, bandwidth-starved bases, were huge, but the meetings had to be seamless. In the early days I saw that interruptions in connection or other glitches undercut the perceived importance of the forum, and I could not allow that. For the same reasons, the O&I was never canceled and attendance was mandatory. I felt that if the O&I was seen as an occasional event not always attended by key leaders, it would unravel.

The rules for any meeting are established more by precedent and demonstrated behavior than by written guidance. I wanted the O&I to be a balance of reporting of key information and active interaction. That didn’t come naturally, particularly across a digital medium. The participants came from different organizational cultures, were thousands of miles apart, and had never met in person. Getting candor under those conditions was not easy, but we made it work. When necessary, I would preplan questions or comments and plant them with trusted partners to help demonstrate to everyone what I wanted the O&I to be.

Although the O&I had to be a briefing to the entire force, my role as commander remained central. Our system worked such that the person giving the brief was shown on the screen from wherever he or she was

located, but the default returned to me when the brief finished. As a result, I was on live TV in front of my entire force and countless interagency partners every day for an hour and a half. If I looked bored or was seen sending e-mails or talking, I signaled lack of interest. If I appeared irritated or angry, notes such as “What’s bothering the boss?” would flash across the chat rooms that functioned in parallel to the video teleconference. Critical words were magnified in impact and could be crushing to a young member of the force. I learned that simply removing my reading glasses and rubbing my temple was an action that was interpreted on several continents.

There were constant opportunities to lead. Each day several intelligence analysts, typically young people I hadn’t yet met in person, would be tasked to give short updates from their locations—places like the U.S. embassy in Sanaa, Yemen, the National Security Agency headquarters at Fort Meade, or a small base along the Afghanistan-Pakistan border. Sitting in a small room, often alone, they would have the daunting experience of giving a televised presentation to a fifty-plus-year-old general and an intimidating group of experienced warriors and intelligence professionals. Few slept the evening before, and it would have been simple for me to unintentionally, even unconsciously, make it a terrible experience for them.

When their turns came and their faces suddenly filled the screen I made it a point to greet them by their first name, which often caused them to smile in evident surprise. They were eight levels down the chain of command and many miles away—how did the commanding general know their name? Simple: I had my team prepare a “cheat sheet” of the day’s planned briefers so I could make one small gesture to put them at ease.

As they briefed me I tried to display rapt attention. At the conclusion, I’d ask a question. The answer might not be deeply important, and often I knew it beforehand, but I wanted to show that I had listened and that their work mattered. Some were flustered by the question—they would sigh in relief when they made it through their briefing—but it also

gave them a chance, in front of the entire command, to show their knowledge and competence.

For a young member of the command, even if the brief had been terrible, I would compliment the report. Others would later offer them advice on how to improve—but it didn't need to come from me in front of thousands of people. When we did it right, the analyst left the O&I more confident about, committed to, and personally invested in our effort.

"Thank you" became my most important phrase, interest and enthusiasm my most powerful behaviors. In a small room with trusted advisers, frustration or anger can be put into context and digested. But the daily O&I was large enough that petulance or sarcasm could be disastrous. More than anything else, the O&I demanded self-discipline, and I found it exhausting. But it was an extraordinary opportunity to lead by example.

I adopted a practice I called "thinking out loud," in which I would summarize what I'd heard, describe how I processed the information, and outline my first thoughts on what we should consider doing about it. It allowed the entire command to follow (and correct where appropriate) my logic trail, and to understand how I was thinking. After I did that, in a pointed effort to reinforce empowered execution, I would often ask the subordinate to consider what action might be appropriate and tell me what he or she planned to do.

Thinking out loud can be a frightening prospect for a senior leader. Ignorance on a subject is quickly obvious, and efforts to fake expertise are embarrassingly ineffective. I found, however, that asking seemingly stupid questions or admitting openly "I don't know" was accepted, even appreciated. Asking for opinions and advice showed respect. The overall message reinforced by the O&I was that *we* have a problem that only *we* can understand and solve.

Gardeners plant and harvest, but more than anything, they *tend*. Plants are watered, beds are fertilized, and weeds are removed. Long days

are spent walking humid pathways or on sore knees examining fragile stalks. Regular visits by good gardeners are not pro forma gestures of concern—they leave the crop stronger. So it is with leaders.

The military term is “battlefield circulation” and it refers to senior leaders’ visiting locations and units. I found that these trips, like almost everything, benefited from careful planning and focused execution. Most of these visits had multiple objectives: to increase the leader’s understanding of the situation, to communicate guidance to the force, and to lead and inspire. A good visit can accomplish all three, but a bad visit can leave subordinates confused and demoralized.

Visits offer an opportunity to gain insights absent from formal reports that have passed through the layers of a bureaucracy. I found it helpful to communicate before the visit the primary questions I had and to ask for background information I could review before arriving. On-site, briefings from the local leadership were appropriate, but they needed to be accompanied by less formal interaction with individuals further down the chain. It was pointless to bring junior members to big meetings in front of their entire chain of command and expect candor, but I found that creating the right venues was easy to organize.

There’s an art to asking questions. Briefings are valuable but normally communicate primarily what the subordinate leader wants you to know, and often the picture they provide is incomplete. Thoughtful questions can help fill in the blanks. Early in 2005 my intelligence officer, then–Colonel (later Lieutenant General) Mike Flynn, taught me a great technique. We were visiting a unit that boasted of having more than 250 intelligence sources (Iraqi civilians recruited to pass information to U.S. forces). I was deeply impressed. Mike then asked a simple question: “Can you describe your very best source? I’ll assume that all the others are less valuable.” The unit admitted that the best was new and unproven, and in an instant it was clear that their source network had little real substance.

I later used a specific question when talking to junior officers and sergeants in small bases in Afghanistan: “If I told you that you weren’t

going home until we win—what would you do differently?" At first they would chuckle, assuming I was joking, but soon realized I wasn't. At that point most became very thoughtful. If they were forced to operate on a metric of task completion, rather than watching the clock until they went home, the implications would be significant. Almost all were good soldiers and leaders, but they had been shaped into thinking in terms of their tour of duty, a time horizon that rarely predicted successful mission completion.

Once they recalculated, their answers were impressive. Most adjusted their approach to take a longer view of solving the problem. You might expect them to seek a quicker solution and an earlier ticket home. But they were experienced enough to know that real solutions demand the long view—simple fixes are illusory. Although I couldn't change the troop rotation policy, as I left, I'd ask each soldier to execute his or her duties with that mind-set.

Communicating during visits is nonstop. From small group meetings with leaders to "town hall" talks to larger groups, I found it essential to let members of the command hear directly from me. I'd often start by standing in front of them and asking them to look into my eyes and decide over the next hour if they trusted me. I told them I was doing the same with them. "You have the right to judge in person the leader who represents you—and I have the right to size you up as well." I avoided talking down to them, and I tried to understand and respect their perspective. It was often difficult. Soldiers fighting a daily battle under frightening conditions can feel their leaders are far removed from their reality. There's no magic cure for this challenge, and soothing words that aren't backed up by action encourage cynicism. If, after hearing their problems or concerns, I couldn't do anything about them, I found it far better to state that directly than to pretend I could change things. Simple honesty shows, and earns, respect.

It is important to be realistic. Visits are often planned by well-intentioned, energetic staff members who plan more activities than can be accomplished. Hurried "drive-by" interactions leave subordinates

frustrated—if you come to ask questions, leave enough time to listen to the answers. And remember that even senior leaders are human. Congressional delegations would often arrive in Iraq so exhausted by the long flight and their jammed schedules that they would doze off as we tried to explain what we were doing. It is hard to learn or express support for the force if you are asleep.

Over my career I'd watched senior leader visits have unintended negative consequences. Typically schedules were unrealistically overloaded and were modified during the visit to cancel parts of the plan. On the surface it might be the necessary decision, but invariably soldiers who had spent days preparing a briefing or demonstration for the "great man's" visit were informed at the last minute that all their work had been for naught. It was not a good way to improve morale.

I would tell my staff about the "dinosaur's tail": As a leader grows more senior, his bulk and tail become huge, but like the brontosaurus, his brain remains modestly small. When plans are changed and the huge beast turns, its tail often thoughtlessly knocks over people and things. That the destruction was unintentional doesn't make it any better.

THE WAY FORWARD

Leading a team of teams is a formidable task—much of what a leader must be, and do, has fundamentally changed. The heroic "hands-on" leader whose personal competence and force of will dominated battlefields and boardrooms for generations has been overwhelmed by accelerating speed, swelling complexity, and interdependence. Even the most successful of today's heroic leaders appear uneasy in the saddle, all too aware that their ability to understand and control is a chimera. We have to begin leading differently.

Creating and leading a truly adaptive organization requires building, leading, and maintaining a culture that is flexible but also durable. The primary responsibility of the new leader is to maintain a holistic, big-picture view, avoiding a reductionist approach, no matter how tempting

micromanaging may be. Perhaps an organization sells widgets, and the leader finds that he or she loves *everything* about widgets—designing, building, and marketing them; that's still not where the leader is most needed. The leader's first responsibility is to the *whole.*

A leader's words matter, but actions ultimately do more to reinforce or undermine the implementation of a team of teams. Instead of exploiting technology to monitor employee performance at levels that would have warmed Frederick Taylor's heart, the leader must allow team members to monitor *him.* More than directing, leaders must exhibit personal transparency. This is the new ideal.

As the world becomes more complex, the importance of leaders will only increase. Even quantum leaps in artificial intelligence are unlikely to provide the personal will, moral courage, and compassion that good leaders offer. Persuading teams to network with other teams will always be difficult, but this is a culture that can be planted and, if maintained, can flourish. It just requires a gardener: a human, and sometimes all-too-human, leader displaying the willingness to accept great responsibility remains central to making an ecosystem viable.

RECAP

- ♦ Although we intuitively know the world has changed, most leaders reflect a model and leader development process that are sorely out of date. We often demand unrealistic levels of knowledge in leaders and force them into ineffective attempts to micromanage.
- ♦ The temptation to lead as a *chess master, controlling each move of the organization, must give way to an approach as a gardener*, enabling rather than directing.
- ♦ A *gardening approach to leadership is anything but passiv*e. The leader acts as an "Eyes-On, Hands-Off" enabler who

creates and maintains an ecosystem in which the organization operates.