The London School of Economics and Political Science

Nanomanagement

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Superior Control and Subordinate Autonomy in Conflict:

Mid-level officers of the U.S. and British armies in Iraq (2003-2008)

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Declaration

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Abstract

On battlefields and within organizations, a fog obscures subordinate activity from superior observation, producing an information asymmetry endemic to most superior-subordinate relationships. A superior's ability to observe, to peer through this fog, distinguishes different types of organizations, largely determining what tasks an organization may accomplish and how superior control is balanced against subordinate autonomy (James Wilson, 2000). Yet modern technology is lifting this fog, with each day increasing the detail and depth of what superiors may observe. This thesis explores superior control with modern technology, by introducing and assessing a new term, *nanomanagement*—where superiors use technology to control, in ever-increasing detail, the actions of all of their subordinates.

Through interviewing mid-level officers of the U.S. and British armies, who served in Iraq between 2003 and 2008, this qualitative study explores two questions. "Why nanomanagement?" seeks to understand the causes, or what may motivate nanomanagement. "How does nanomanagement influence superior control and subordinate autonomy?" seeks to understand the effects of nanomanagement. This thesis employs five factors—organizational culture, *ex ante* controls, *ex post* controls, hierarchical control and exogenous factors—as different theoretical frameworks to understand nanomanagement. *Trackers*, *drones* and *long screwdrivers*, modern variants of police patrols that reduce transaction costs and may reverse information asymmetry, are introduced. This thesis also suggests three terms to describe when nanomanaging superiors take action undermining traditional hierarchical control: *shifting* (focusing attention on subordinate levels), *drifting* (acting at subordinate levels), and *grifting* (cheating the hierarchy by controlling actions at levels beneath their immediate subordinates). These actions signal a new form of hierarchical control by exclusion—*ex claudere* control. By analyzing a case where much of the fog separating superior from subordinate thinned and lifted, this thesis assesses and updates the long fought battle between superior control and subordinate autonomy.

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1 DN	First-level subordinate
1 UP	First-level superior
2 DN	Second-level subordinate
2 UP	Second-level superior
3 UP	Third-level superior
AAR	After Action Review
BBC	British Broadcasting Corporation
BDE AST OPS	Brigade Assistant Operations Officer
BDE CDR	Brigade Commander
BDE OPS	Brigade Operations Officer
BN BTL CPT	Battalion Battle Captain
BN CDR	Battalion Commander
BN OPS	Battalion Operations Officer
CCTV	Closed-Circuit Television
CEO	Chief Executive Officer
CGSC	Command and General Staff College
CGSS	Command and General Staff School
CO CDR	Company Commander
COIN	Counter Insurgency Operations
CONOP	Concept of the Operation
CP	Command Post
CPOF	Command Post of the Future
DIV A/OPS	Division Assistant Operations Officer
DIV BTL CPT	Division Battle Captain
DIV OPS	Division Operations Officer
DoD	Department of Defense
FBCB2	Force XI Battle Command Brigade and Below
FOIA	Freedom of Information Act
FOBs	Forward Operating Bases
GPS	Global Positioning System
ICSC(L)	Intermediate Command and Staff Course (Land)
IED	Improvised Explosive Device
ILE	Intermediate Level Education
INSS	Institute for National Strategic Studies
IT	Information Technology
JAGs	Judge Advocate General
JSOC	Joint Special Operations Command
JSCSC	Joint Services Command and Staff College
LSE	London School of Economics and Political Science
MoD	Ministry of Defence
MNC	Multi-National Corps
MND	Multi-National Division
NCO	Non-Commissioned Officer
NCW	Network Centric Warfare (United States)
NEC	Network Enabled Capability (United Kingdom)
OCS	Officer Candidate School
OEMA	Office of Economic Manpower Analysis
OPLAW	Operational Law
PL	Platoon Leader
PT	Physical Training
QAA	Quality Assurance Agency
QDR	Quadrennial Defense Review

R.O.T.C.	Reserve Officers' Training Corps
SDR	Strategic Defense Review
SEALs	Sea, Air, and Land Teams
SITREP	Situation Report
SL	Squad Leader
SOP	Standard Operating Procedure
TOC	Tactical Operations Center
TRADOC	Training and Doctrine Command
U.K.	United Kingdom
U.S.	United States
UAV	Unmanned Aerial Vehicle
USMA	United States Military Academy

CHAPTER 1 **Introduction**

In the summer of 2006, the U.S. Army general in command of all allied forces in Baghdad did not like what he was seeing. Surrounded by a clutch of subordinate officers, the general peered intensely across an air-conditioned, cavernous auditorium to the far wall, a wall covered with dozens of large plasma and projection screens. The screens included a mix of live video images and PowerPoint slides constantly updated with data concerning topics ranging from the day's weather, to the hours of electricity in Baghdad, to the number of daily attacks. On the largest screen, a map of the Baghdad area, small icons indicated the real-time position of hundreds of vehicles inching along highways.

The general and his staff fixed their gaze on one of these screens. On this particular plasma screen, in the clear black and white overhead image shot from an unmanned aerial vehicle (UAV), a stationary van came into focus. Two men stood next to the van, looking into what seemed to be a freshly dug hole. One of the individuals walked to the back of the van. He emerged carrying an object—a large and heavy object. He placed the object in the hole.

"Do you see hostile intent?" barked the general. His legal advisor elbowed into the centre of the clutch, poked his glasses up his nose and said, "Sir, I can't say. We can't fire." The general, unsatisfied, stabbed his finger at the screen and spouted, "God damn it, I know that asshole is putting in an IED!" In Iraq, the improvised explosive device (IED) or road side bomb was the primary cause of U.S. Army deaths (C. Wilson, 2004a).

"What are our options?" the general asked. One of the colonels surrounding the general stated, "Sir, we have a squad two minutes out." Not taking his eyes from the screen, the general said, "Alright, send them in. But give me direct comms with that squad."

As the staff and officers chartered with commanding 60,000 coalition troops in Baghdad quietly watched the plasma screen, for a long minute nothing happened. Then one of the men on the screen stood up suddenly and pointed.   In seconds, both men jumped in their van and sped away. As the overhead image seamlessly tracked the van, the frame slowly zoomed out. Soon two U.S. vehicles came into the image, closing in fast on the van.

The van veered off the road into a small compound of four buildings. The two men jumped out and ran into one of the buildings. "Tell them they went into the northern building of the

compound!" said the general. Moments later, the two U.S. vehicles pulled into the compound. Six soldiers dismounted and started towards the south, toward the closest structure. "The northern house!" barked the general.

In a moment, the soldiers on the screen froze. They then turned and moved to the northern house. They entered, and within minutes they had emerged with two men. "Great work team. There are two less bad guys and one less IED out there," the general stated. Applause rippled through the auditorium.

Figure 1.1 An American general and staff react to a UAV strike[1]

While the general slapped the officers on their backs, faces turned back to the other dozen plasma screens. One counted the number of bodies found every morning on the streets of Baghdad. The data indicated Iraq was descending into civil war.[2]

Modern technology, as used in the Baghdad command post, enables an unprecedented degree of superior control.   In the past, a fog of war permeated the battlefield, obscuring a superior's information about what was occurring with their subordinates (Clausewitz, Howard, & Paret, 1976). Unable to fully understand what subordinates were doing or what they had achieved, superiors were left with few options but to build organizations around the principle that subordinates should be granted some level of autonomy (Schein, 1990; Van

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[1] *Source (Hill, 2008).*
[2] This scene was recreated from the author's notes while serving as the Special Forces Liaison to the Multinational Division-Baghdad from March 2006-August 2006.

Creveld, 2008). Militaries around the world invested in developing trusted, professional subordinates (Huntington, 1957; Janowitz, 1960; O'Neill, 2002) while continuing a search for the most cost-effective monitoring controls (Brehm & Gates, 1997; P. Feaver, 2003; McCubbins & Schwartz, 1984). Militaries adopted hierarchical organizational structures, seeking order within the chaos and uncertainty of war (Alchian & Demsetz, 1972; Simon, 1946; Weber, Henderson, & Parsons, 1947; James Wilson, 2000).

Today the fog of war is lifting. With the adoption of a vast array of technologies, superiors can monitor and control the actions of their lowest subordinates in real-time. This use of new technologies invites and enables nanomanagement, a new type of control. The objective of this thesis is to understand both the causes and effects of nanomanagement on superiors, subordinates, and organizations. This thesis employs a case study analyzing mid-level officers of the U.S. and British armies in Iraq from 2003-2008, a unique period that captures superiors and subordinates grappling with new technologies.

Section 1.1 of this introductory chapter frames the thesis by explaining the tension between superior control and subordinate autonomy. Section 1.2 then defines nanomanagement and explains why this thesis seeks to understand both the causes and effects of nanomanagement. To systematically address these two questions Section 1.3 discusses how this thesis will assess causes and effects, through the exploration of five factors. Section 1.4 presents the contribution of this thesis. Section 1.5 outlines the structure of the thesis. Section 1.6 concludes.

1.1   The conflict between superior control and subordinate autonomy

Both autonomy and control imply a relationship between actors. In a hierarchical relationship that includes delegation, a conflict exists between superiors and subordinates. Superiors cannot do everything; they find subordinates to do their bidding and assign them tasks. The subordinate quickly develops an advantage over the superior, an information asymmetry, whereby the subordinate possesses more knowledge about the work being done and the results of that work. For the subordinate, this information asymmetry allows autonomy, defined as the discretion to decide what to do and to decide how to do it (Cameron & Quinn, 2006; P. Feaver, 2003, p. 64; Koen, Peters, Geert, & Bram, 2004, p. 106).

While subordinates seek to maximize their autonomy, superiors seek the greatest control. Superior control is defined as the mechanisms and instruments used by a superior to

influence the decisions and the behaviour of the subordinate to achieve the superior's objectives (H. C. White, 1991, p. 189). Yet in order for anything to get done, superiors must delegate some autonomy to subordinates. In examining the civil-military relationship, scholars see striking the appropriate balance between control and autonomy as essential (Huntington, 1957; Janowitz, 1960). Civilians must grant the military enough autonomy to perform its function of defending the government, yet civilians must retain enough control to prevent the military from becoming too powerful and overthrowing or undermining the government (P. Feaver, 2003; P. Feaver, 1999; Huntington, 1957). This exemplifies the inherent conflict between superior control and subordinate autonomy.

While this conflict is inherent to delegation, there is wide variance in how this conflict manifests. In some organizations, superior-subordinate relationships are characterized by *ex ante* controls where superiors design and implement tools to align the preferences of their subordinates prior to delegation (Bikhchandani, Hirshleifer, & Welch, 1992; Pratt & Zeckhauser, 1991b). Through screening of applicants, subordinates are selected, or trained, to share the values and preferences desired by the superior. However, with the difficulty of completely aligning the subordinate's incentives with a superior's, the most stringent *ex ante* controls rarely guarantee the subordinate behaves exactly as a superior wishes (Williamson, 1985). Other superior-subordinate relationships are characterized by *ex post* controls, or controls implemented after the task is delegated. By employing a wide range of monitoring tools (e.g. reporting requirements, conducting hearings, threats of visits or spot checks), superiors seek to identify whether subordinates are fulfilling their delegated tasks, that they are working as opposed to shirking (Brehm & Gates, 1997; Pratt & Zeckhauser, 1991b).

The choice between *ex post* and *ex ante* controls can determine the level of superior control and subordinate autonomy one could expect to find in different organizations. Wilson (2000) believes this determination produces four different types of organizations based on one factor—the amount a superior could observe subordinate activities. He established this typology dependent on whether subordinate work ("outputs") and the results of that work ("outcomes") was observed or obscured from superiors (James Wilson, 2000, p. 158). This variable observation of outputs and outcomes produce four types of organizations— production, procedural, craft and coping—that determine a variety of organizational characteristics: from incentive structures, to management styles, to the amount of freedom given subordinates and the types of controls employed (Gregory, 1995; James Wilson, 2000).

Production organizations, where both outputs and outcomes are observed, focus on efficiency. As superiors observe both what their subordinates are doing and their results, very little is hidden from the superior's view. Superiors have tight control of subordinates relying heavily on *ex post* monitoring controls. As outputs and outcomes can be observed, they can be measured. In production organizations, superiors often focus on indicators of progress that which can be easily measured "at the expense of those less easily observed or counted" (James Wilson, 2000, p. 161).

Procedural organizations, where outputs are observed but outcomes are obscured, focus on process. Superiors observe what their subordinates are doing, but not what result this work is producing. Superiors exert tight control of subordinates, developing rules, standard operating procedures and processes. Superiors focus on how subordinates do their jobs rather than what is accomplished. When training for war, Wilson sees the military as a procedural organization, where work (i.e. the training and preparation for war) can be observed, yet the outcome of that work (i.e. whether the training will actually produce victory or defeat) is obscured (James Wilson, 2000, p. 163).

Craft organizations, where outputs are obscured but outcomes are observed, focus on effect. Superiors cannot observe what their subordinates are doing, but only know the results of their work. Superiors in craft organizations invest heavily in *ex ante* controls, seeking to instil an "ethos and sense of duty" in subordinates (James Wilson, 2000, p. 167). Wilson sees the military at war as the quintessential craft organization, where the work being done is obscured by the fog of war, but the outcome (i.e. whether the battle was won or lost) is known.

Coping organizations, where both outputs and outcomes are obscured, focus on maintaining any small semblance of order. They combine *ex ante* and *ex post* controls, seeking to hire the best people and monitor what they can. Yet there is little superior control in coping organizations and since so much is obscured, subordinates are granted little autonomy. Wilson sees few government agencies that could fall within the *coping* characterization. Figure 1.2 highlights Wilson's four categories, their characteristics and where the military is found in peacetime and at war.

	Procedural Organization	**Production Organization**
Observed	**Military in peacetime**	*No military example*
	Outputs observed/outcomes obscured	Outputs/outcomes observed
	High superior control	High superior control
	Low subordinate autonomy	Low subordinate autonomy
	Ex post controls—focus on process	Ex post controls—focus on efficiency
	Coping Organization	**Craft Organization**
Obscured	*No military example*	**Military at war**
	Outputs/outcomes obscured	Outputs obscured/outcomes observed
	Low superior control	Low superior control
	Low subordinate autonomy	High subordinate autonomy
	Minor ex post and ex ante	Ex ante controls—professionalism

Outputs (work) — vertical axis: *Observed* (top), *Obscured* (bottom)

Outcomes (results) — horizontal axis: *Obscured* (left), *Observed* (right)

Figure 1.2 Wilson's organizational typology and the military

This typology of organizations, based on the degree of fog separating superiors from observing what their subordinates were doing and what they have accomplished, frames this thesis's analysis of superior-subordinate relationships. Recognizing that superior-subordinate relationships may change depending on the information asymmetry between superior and subordinate, Wilson saw the military alternating between two very different types of organizations. Yet as the opening vignette highlighted, contemporary technology spreading through public and private organizations is rapidly and dramatically altering what superiors can observe. Superiors simply know more both about what their subordinates are doing and the results of this work, faster and in greater detail. As more is observed and less is obscured, technology makes possible a new degree and level of superior control. By analyzing a contemporary case, this thesis assesses both the causes and effects of this new type of control, what I term nanomanagement.

1.2   Nanomanagement—its definition, causes and effects

The opening vignette highlighted a form of management, defined as the process of controlling people and resources (Weber, 1968). Some might describe the general's actions as micromanagement, commonly defined as a more detailed management by superiors, exerting "excessive control" over subordinates with attention to small or minor details that

undermines a subordinate's judgement and responsibility (Coker, 2008). Yet the terms "excessive" or "minor" are clearly normative. What may be perceived by the subordinate as excessive or minor may simultaneously be perceived by the superior as appropriate and essential. Therefore this thesis defines micromanagement objectively: *where superiors control in detail the actions of their immediate subordinates*.

However, the opening vignette represents something beyond micromanagement. New technologies allowed the general a level of control only recently possible. Just as molecular scientists of the 1970s and 1980s coined the term "nanotechnology" to account for the increased level of manipulation that new technology allowed, today's social scientists need to account for new technology that allows for the more exacting level and degree of control seen today. I define that term as **nanomanagement**—*where superiors use technology to control, in ever-increasing detail, the actions of all of their subordinates.*

Through theory and empirical analysis, this thesis explores the empirical validity of nanomanagement and its potential implications on superior control and subordinate autonomy. I argue what was observed in this thesis's opening anecdote deserves a special term for four reasons. First, all management, to include nanomanagement, exerts some level of superior control, curtailing some level of subordinate autonomy. Yet nanomanagement differs by dramatically reducing the costs of control, and dramatically increasing the amount of information that can be captured, transmitted, stored and accessed. With technology, tomorrow more will be observed and less will be obscured.

Second, all management, to include nanomanagement, seeks to reduce information asymmetries that have long characterized superior-subordinate relationships (Pratt & Zeckhauser, 1985). However, nanomanagement differs in that it may reverse information asymmetry, where a superior may now know more about a subordinate's actions, in real-time, than the subordinate knows. This difference will influence preferences between *ex post* and *ex ante* control, the role of hierarchical actors, and the structure of organizations.

Third, all management, to include nanomanagement, requires at least two actors—a superior and a subordinate—in some form a hierarchical arrangement. However, nanomanagement differs from traditional management. Where management reinforces this two actor, hierarchical relationship, nanomanagement undermines it by involving more actors than simply a superior and an immediate subordinate. Nanomanagement can be micromanagement by an actor higher than a subordinate's immediate superior. The effects

of nanomanagement can be felt by a multitude of actors—the nanomanager, the nanomanaged, and all those levels of hierarchy that were marginalized or excluded. Nanomanagement bypasses and obviates entire levels of a hierarchy; this bypassing constitutes another form of control.

Fourth, all management, to include nanomanagement, requires some level of communication between superior and subordinate. Yet nanomanagement differs in that it allows constant and instant communication. While other technologies have existed that allowed communication between the highest and lowest levels of an organization, contemporary technologies have dramatically lowered the costs of such communication.

This thesis does not suggest nanomanagement is a completely contemporary, or uniquely military, phenomenon. An astute historian could surely see elements of nanomanagement in President Lincoln in the War Departments' telegraph office, reading and sending telegraphs to help guide the Civil War; in Winston Churchill in the Cabinet War Room, using the scrambler telephone to communicate; in U.S. Army generals in helicopters, circling above platoon level engagements in Vietnam; or in the direction and approval of individual targets at four star and presidential level during the air war in Kosovo. Twenty-first century technologies allow superior control to occur, with a speed and degree perhaps desired, but yet impossible in years past.

Having defined nanomanagement and the importance of understanding it, I now turn to the two questions that this thesis employs to explore both the causes and effects of this modern type of control.

1.2.1   Causes—Why nanomanagement?

This thesis's first research question is: *why nanomanagement*? Just because information technology now exists does not mean that it will inevitably or invariably be employed to nanomanage. A superior could employ nanomanagement under some conditions, but allow subordinate discretion in others. Some superiors, based on their organization's culture or degree of professionalism, may be more or less prone to nanomanagement. This thesis examines factors that can explain much of the motivation to nanomanage.

The question is not, "What causes nanomanagement?" I am sensitive to employing the word *cause*; by its use, I do not imply that this thesis will develop universal and immutable maxims

of if x, then nanomanagement. Instead, this thesis takes the first steps to understanding an observed phenomenon and testing where one could expect to find it in greater or lesser degrees. The question is also not, "Should one nanomanage?" As much as a subordinate may loathe being micromanaged and thus loathe further oversight, this thesis does not seek to provide normative judgement. Nanomanagement is not meddling; indeed it is the opposite. Meddling means to "interest oneself in what is not ones concern; to interfere without right or propriety" (Merriam-Webster, 2011). Nanomanagement means to use technology to control something that *is* of one's concern. While this thesis will analyse new costs of nanomanagement, new benefits will also be presented.

1.2.2   Effects—How does nanomanagement influence superior control and subordinate autonomy?

This thesis seeks to not only explore the causes of nanomanagement but also its effects. **The thesis's second research question is:** *how does nanomanagement influence superior control and subordinate autonomy?* To answer how, this thesis will profile two organizations that adopted and employed technology at differing rates, examining how their culture, values, use of differing controls, and organizational roles changed.

While this phenomenon will be reflected in the empirical research, by choosing questions that begin with "why" and "how" this indicates a more exploratory approach. I argue that nanomanagement is not a onetime choice. Instead, I argue that there are conditions where one may expect more nanomanagement to occur than not. I also argue that while nanomanagement certainly produces disruptive effects, these effects may not break long-established organizational characteristics. Hierarchical structures, organizational cultures, traditions, rules and roles are difficult to change. Like an elastic band, nanomanagement may only stretch these organizational characteristics temporarily. By exploring the effects of nanomanagement, this thesis examines to what degree the organization bounces back.

1.3   Factors influencing the causes and effects of nanomanagement

To assess the diverse causes and effects of nanomanagement, this thesis is structured around five broad factors, combining multiple theoretical frameworks to observe a contemporary phenomenon through different lenses (Dunleavy, 1990). Each framework has its own literature and contribution to understanding the causes and effects of nanomanagement.

Nanomanagement should not be seen as a binary function with certain cultures, organizations or exogenous conditions determining whether a superior flips a switch between nanomanaging and not nanomanaging. Instead nanomanagement should be seen along a continuum, with these factors pushing and pulling the superior to exert tighter control or grant wider autonomy.

First, this thesis focuses on two factors that will set up the general state of superior-subordinate relationships, largely irrespective of technology. For these two factors—organizational culture and *ex ante* controls—technology is more disruptive to superior control and subordinate autonomy than destructive. Beginning this way allows the establishment of what actors think in general about autonomy and control. Once this baseline is established, this thesis then focuses on two factors where new technology produces profound effects in how superiors control, monitor and interact with subordinates. For these two factors—*ex post* controls and hierarchical control—technology certainly disrupts, and may destroy established norms. Finally this thesis collectively analyses exogenous factors—uncertainty and accountability—where technology plays a more interactive effect.

The presentation of these five factors in this order allows a structured analysis of causes and effects. The literature on organizational culture seeks to explain that actors are controlled through shared values, beliefs and norms (Schein, 2010). The literature of professions sees control through rigorous *ex ante* screening and selection schools, which grant subordinates autonomy to be trusted to apply an abstract field of knowledge (A. D. Abbott, 1988; Freidson, 1983). Control by culture and *ex ante* control is anathema to the real-time control of nanomanagement. By comparing two similar organizations, both with cultures that state the value of subordinate autonomy in their doctrine and both investing in *ex ante* controls, this thesis can analyse whether certain cultures or professions would be more or less prone to nanomanage.

Second, two bodies of literature focus more intently on the effects of nanomanagement. The literature of transaction costs (Coase, 1937; Williamson, 1981) sees control primarily through *ex post* monitoring (McCubbins & Schwartz, 1984). The literature on hierarchies sees control through the establishment of rules and roles that govern the responsibilities of each level, and how each level interacts with superior and subordinate levels (Weber, et al., 1947; James Wilson, 2000). By analyzing and comparing two organizations that adopted monitoring tools

at differing rates, while retaining a hierarchical structure, I expect to see the effect of nanomanagement on superior-subordinate relationships.

Third, the literature on two exogenous factors explains both the causes of nanomanagement and its effects. Control is seen as a response to environments of uncertainty (Clausewitz, et al., 1976; Lonsdale, 2004; Tzu, 2007; James Wilson, 2000) and accountability (Douglas, 1992; Hood, 2002, 2011; Power, 1994, 2000a; Radin, 2006); an analysis of these two exogenous factors will look at both causes and effects.

While these five factors may explain causes of nanomanagement more than the effects of nanomanagement, or vice versa, each will contribute to answering both questions. This thesis serves up a dish of nanomanagement, made up of many flavours. By examining the same phenomenon from different approaches, this thesis seeks to explain both why it came to the table and how one should expect it to taste.

1.3.1   Culture

Does an organization's culture in part determine the degree of nanomanagement? In examining the causes of nanomanagement, this thesis first analyses established cultural beliefs of autonomy and control. A study of a single organization would expose this thesis to a logical critique: just as an individual may be predisposed to nanomanage, so too could a single organization. By exploring two organizational cultures that differ (the U.S. and British armies), but share a common hierarchical structure; that operate in the same uncertain wartime environment; and that both invest heavily in *ex ante* controls, this thesis can explore why culture may be a determinant of nanomanagement.

Wilson (2000, p. 27) saw organizational culture as a combination of factors such as the environment, beliefs held by members of the organization, prior experiences and traditions. This thesis argues that different cultural understandings of autonomy and control, as expressed by an organization's written doctrine, may predispose superiors to nanomanage. Both armies developed a clear understanding of autonomy, reflected in their written doctrine. Yet each army differs in the degree to which the lofty goals of doctrine manifest in practice. A previous work identified differences between the U.S. and British armies' organizational culture and how this manifested in different approaches to granting subordinates autonomy (Sowers, 2005). The British Army demonstrated a culture where superiors grant subordinates a broad mandate, allowing subordinates the latitude to execute

as they see fit. Conversely, the U.S. Army reflected a culture where superior control was paramount and subordinate autonomy was more tightly restricted.

With this baseline difference identified, this thesis again studies these two armies. Technology is seen as one of the primary causes of cultural change (Schein, 1990). Indeed, both armies responded to the information age by changing their doctrine. An analysis of how technology was thought to change autonomy, reflected in doctrine, will structure the empirical analysis. Further, in the case of these armies in Iraq, technologies that allowed tighter control were adopted more rapidly by the resource rich U.S. Army than the relatively resource poor British Army. As these technologies were adopted, did the British Army's cultural predilection to grant subordinates broad autonomy persist? Or did the temptation of nanomanagement overwhelm culture? When powerful monitoring technologies are placed in the hands of superiors, can organizational culture serve as a deterrent to superiors that seek to employ these tools? This thesis argues that despite differences in organizational culture, superiors will employ these technologies to exert ever more control.

1.3.2 *Ex ante* control

Like examining cultures seen resistant to nanomanagement, this thesis examines specific types of organizations where nanomanagement would not be expected, namely those that spend a large amount of resources in selecting, screening and training. Subordinates that pass through these *ex ante* controls expect to be entrusted with a degree of autonomy greater than if they had not undergone the training (A. Abbott, 1981; A. D. Abbott, 1988; Freidson, 1983; Lynn, 1965b). These *ex ante* controls are commonly found in professions, unique organizations whose strict entry and education requirements instil a level of trust in subordinates. Does being a member of a professional organization mean superiors should nanomanage their subordinates less?

By claiming a monopoly over the application of abstract knowledge, be it doctors' management of medicine or soldiers' management of violence, a profession's very existence demands that they be trusted to apply that knowledge judiciously (A. D. Abbott, 1988; Lynn, 1965b). Trust between superiors and subordinates is vital, both for the conduct of the professional and for the profession itself (O'Neill, 2002). For much of history, military superiors had little choice but to trust their subordinates and grant them wide autonomy. Indeed, militaries in the nineteenth and twentieth century increasingly professionalized, developing, at great expense, *ex ante* controls. The rigid selection, screening and training

found in military schools and academies inculcated professional norms that would guide, and control, widely dispersed autonomous actors (Huntington, 1957; James Wilson, 2000, p. 149). Where most subordinates seek or hope for a degree of autonomy, being entrusted with a level of autonomy is what defines professionals (James Wilson, 2000).

While professionals expect to be trusted in their assigned tasks, technology disrupts and makes obsolete tasks that previously required trust (A. Abbott, 1981, p. 35). Telegraph, radio, telephone, television, computers—each new technology has created professional domains and destroyed others (A. D. Abbott, 1988). Professionals constantly struggle to defend their domain, their monopoly of some field of abstract knowledge. If they lose this struggle and their tasks can now be controlled or automated, they lose the trust that defines them as a professional. If a high-level superior now possesses tools to closely control all actors, will the temptation to control overwhelm a profession's tradition of trust? As fully explored in Chapter 4, I assess why nanomanagement is observed in one of the least likely of places—within professions.

1.3.3   *Ex post* control

Where the first two factors explore organizations that value autonomy and expend resources on *ex ante* controls to assess causes of nanomanagement, the next two factors look more at the effects of nanomanagement. A superior seeks subordinates who will choose working, defined here as performing tasks to the superior's satisfaction, instead of shirking, defined here as not performing tasks to the superior's satisfaction (P. Feaver, 2003, p. 60). While a superior may be tempted to closely control subordinates, control generates costs for both superiors and subordinates (Coase, 1937; Williamson, 1981). In establishing *ex post* controls, superiors must allocate time and resources to processing the data requested and taking action. The superior's time and resources are also spent developing and refining the control mechanisms and sanctioning those subordinates who choose shirking instead of working. The superior may bear those costs of *ex post* oversight through "police patrols" (expending time and resources to check up on subordinates) or outsource the monitoring to third parties that can serve as "fire alarms" to warn of subordinate shirking (McCubbins & Schwartz, 1984).[3] The superior's degree of control is a cost calculation—how to control at the least cost.

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[3] A third, widely discussed option of "deck stacking" of establishing ex ante controls mandating reporting and procedures will be examined in later chapters.

Ex post monitoring also creates costs for the subordinate. Every new reporting requirement, meeting that must be attended, or minute spent answering queries take time away from the delegated task. With less monitoring, both superior and subordinate produce fewer transaction costs. In Chapter 5, I argue that nanomanagement has changed the basic cost calculus for *ex post* monitoring away from fire alarms and towards new types of police patrols. While traditional police patrols are as costly as ever, three sub-categories of police patrols (*trackers*, *drones* and *long screwdrivers*) have proliferated on the battlefield. These tools may do far more than reduce costs but may reverse information asymmetry, allowing the superior to know more about a subordinate's actions than the subordinate knows.

However, if the superiors' fundamental desire is to get subordinates to work, does increasing control reduce the chance of shirking? As monitoring costs go down, how will superior-subordinate relationships change? With these new options, is the preference for fire alarms over police patrols still valid? Now that nanomanagement is possible, an updated calculation of costs and benefits to both the superior and the subordinate will be explored.

1.3.4   Organizational structure

How does nanomanagement influence actors at different positions within a hierarchy? Having explored how decreasing monitoring costs influence superior-subordinate relationships, this thesis examines how nanomanagement influences the organizational roles and behaviours of actors throughout a hierarchy.

Organizations adopt hierarchical structures to organize and accomplish large tasks (Weber, et al., 1947). Hierarchies seek control through structuring information flow (Arrow, 1991), limiting a superior's span of control (Hamilton, 1921; Simon, 1946), and establishing a clear unity of command (Gulick, 1937; Simon, 1946). Hierarchies allow for a protocolization of tasks as separate levels specialize and take on different roles and responsibilities. To help explore the influence of nanomanagement on various actors, this thesis adopts Wilson's (2000) typology of separating the hierarchy into levels of operators (low-level), managers (mid-level) and executives (upper-level), each with different roles and responsibilities, yet stable superior-subordinate relationships.

Technology disrupts this stability. With new information technologies, many organizations not only adopted technology but adapted their organizational structure (Arquilla & Ronfeldt, 1997b, p. 5). In many organizations hierarchies were flattened, spans of control were

expanded and entire levels of mid-level management were eliminated (Heclo, 1978; Leavitt & Whisler, 1958; Thorelli, 1986; Williamson, 1975). Yet this did not occur in all organizations. After billions of dollars spent on adopting technologies, the hierarchical organization of the modern military remains almost entirely unchanged from its pre-information age structure.

By adopting technology while retaining hierarchy, in Chapter 6 I argue that nanomanagement expands the available options for superiors to control subordinates. No longer may only the subordinate violate the delegation contract by shirking. This thesis argues superiors now may take three actions that violate their portion of the delegation contract:

s*hifting,* focusing their attention on subordinate levels

drifting, acting at subordinate levels

grifting, cheating the hierarchy by controlling actions at levels beneath their immediate subordinates

Further, I argue that the sum effect of *shifting, drifting*, and *grifting* requires a new term for a type of control based on exclusion—what I term *ex claudere* controls. As the superiors of mid-level officers increasingly observe, act and communicate with the mid-level officer's subordinates, these mid-level officers are then excluded from their traditional role in the military hierarchy. Now that their superiors can speak, direct and monitor their subordinate, what is left for these mid-level managers to do? How does the newfound ability for superiors to manage not one, but multiple levels down through the chain of command influence those levels that are now bypassed? I argue that as these hierarchical levels are physically retained but functionally excluded, organizations may enter into a cycle of nanomanagement, with profound effects on organizational roles and behaviours.

1.3.5 Exogenous factors: uncertainty and accountability

Do factors external to the organization influence nanomanagement? The final factor looks outside of the confines of the organization. By assessing factor that characterize contemporary military operations—the uncertainty of the environment alongside a broad societal shift towards greater accountability—this thesis can assess both explanations of whether nanomanagement occurs as a response to exogenous factors as well as how these exogenous factors condition superior-subordinate relationships.

I approach uncertainty by recognizing that uncertainty in the environment is related to uncertainty in one's role. War has been characterized by environmental uncertainty; military

commanders have a history of demanding ever more information—about the enemy, the terrain and their own forces—to mitigate that uncertainty (Galbraith, 1977). For Wilson (2000, p. 228), a superior's belief that more information means less uncertainty is questionable. Yet with more information available at less cost, I argue that military commanders will increasingly nanomanage in war, just another step in their "endless quest for certainty" (Van Creveld, 1985, p. 264). In Chapter 7, I assess environmental uncertainty as a cause of nanomanagement.

However, information is not the only tool militaries have used to manage uncertainty. Managing uncertainty and risk is a feature of organizational design (Power, 2007; James Wilson, 2000). Organizational structure, task specialization and training allow members of the military to prepare for assigned roles in the chaos of combat. In war, militaries may not know who, what, when, where or why they will fight, but they do know how they will fight (their output) and the desired outcome (defeat of the enemy). Tankers will drive tanks. Artillery officers will fire cannons. Victory is clearly defined. While conventional war may be uncertain, militaries do their best to reduce role uncertainty, ensuring their members are at least certain in their expected output and desired outcome.

Yet a feature of modern war is with "increasing levels of unpredictability and complexity" outputs and outcomes have become uncertain (Mackay & Tatham, 2009, p. 8). Tankers no longer only drive tanks; they meet with local leaders to discuss employment programs. Artillery officers no longer only fire cannons; they guard gates. Victory is not defined and easily measured, but vague. Role uncertainty is endemic. If a superior is uncertain of his role, he will be uncertain of what to delegate to subordinates and therefore how to control them. If a superior is uncertain of the desired outcome, it will be difficult to determine what should be measured as progress. Complicating this role uncertainty is nanomanagement. While a superior may not know what to do or what to measure, with technology, they more easily may observe and measure more. Chapter 7 will therefore also analyse the effect of nanomanagement on superior-subordinate relationships when roles are uncertain.

As uncertainty has long characterized warfare, rising accountability characterizes a more recent trend in both the U.S. and U.K. societies. In the last two decades, accountability has adopted a normative quality, as governments, agencies and corporations face increasing calls for greater transparency in what they do and how they do it. This environment of accountability incentivizes superiors, both external and internal, to monitor and control in a far more exacting degree (Power, 2000a, 2007; Radin, 2006). Who is accountable—the

superior or the subordinate—is more difficult to determine when superiors know more about their subordinates' actions. Where some scholars (O'Neill, 2006) see more accountable environments allowing a transfer of responsibility down the chain of command, others see this driving further responsibility toward the top (Douglas & Wildavsky, 1982; James Wilson, 2000). In either case, both actors may seek defensive strategies—with superiors demanding, and subordinates creating, unnecessary but defensible reports and audit trails, where blame can be avoided without fixing the problem (Hood, 2006).

In Chapter 7, I will evaluate whether an environment of rising accountability may cause nanomanagement. Superiors who are responsible for everything their subordinates do or fail to do must nanomanage both to avoid external sanction and to reduce their liability exposure. If superiors *can* request data and emplace control mechanisms, in a more accountable environment they *must*. If subordinates may be found accountable not just for their actions, but for how they documented their actions, how does this change their relationship with superiors?

1.4   Contribution of the thesis

The conflict between superiors seeking control and subordinates seeking autonomy is not a contemporary phenomenon. Yet contemporary information technologies increasingly allow the highest superiors control to a degree never before possible. The study of nanomanagement will offer theoretical and empirical contributions to assess how technology influences the tension between superior control and subordinate autonomy. Each factor analysed in isolation will only provide a portion of the overall picture; I hope to advance theory in differing fields that are rarely integrated, yet together explain superior-subordinate relationships within organizations. I do not claim to provide definitive answers but seek to build theories that capture a phenomenon commonly understood to be occurring but to date not comprehensively studied in this way.

Despite accounting for a large proportion of government expense and in many cases representing the largest government bureau in terms of manpower and resources, students of civil administration have paid disproportionally less attention to the military as an organization. I can understand why. As a distinct and often closed culture of dense language, hierarchical ranks, slang and acronyms, the military is difficult to understand. As a bureau that conducts its work usually far from urban centres of learning, the military is difficult to survey. As a massive and largely closed bureaucracy where knowing the

appropriate level of analysis and then gaining access to this level are both problematic, the military is difficult to penetrate.

Much of civil-military scholarly work has focused on two important questions. The first focuses on how much should civilians control the military. The question is rarely *if* civilians should control the military. A central tenet of democratic theory is the belief that the governed should govern and that authority flows from the ballot box to elected institutions. Civilians therefore have "a right to be wrong" in deciding how much they should control the military (Gregory & Hicks, 1999, p. 216). However, the military must be granted enough autonomy such that the nation is protected from threats, yet should be controlled enough such that the military will not overthrow the elected government (P. Feaver, 2003). Differing theories of the appropriate amount of control informs much of civil-military scholarship (Desch, 1999; P. Feaver, 2003; Huntington, 1957; Janowitz, 1960; Yoo & Sulmasy, 2007; Zhang, 2000).

The second focuses on the appropriate distance between the military and civil society. Where some expect the military to form a separate and distinct culture (Huntington, 1957), others feel the military should reflect the society from which it springs (Janowitz, 1960). Civil-military scholars have studied differences in values, ideas and beliefs, and whether these differences create to wide a gap or a break in a covenant between a superior state and its subordinate soldiers (P. Feaver & Kohn, 2001; Forster, 2006; McCartney, 2010). Many have examined the degree to which a military is a profession, relating this to the appropriate distance a military should have from its civil society (Burk, 2002; A. Larson, 1972; Matthews, 2002; Sarkesian, 1981; Sarkesian, Connor, & Sarkesian, 2006; D. M. Snider, Nagl, & Pfaff, 1999; D. M. Snider, Oh, & Toner, 2009; U.S. Army War College, 1970).

This thesis informs these two questions. First, this thesis examines control *within* the military which will help explain control *of* the military (Brehm & Gates, 1997). Do internal superiors also have the right to be wrong? Second, its analysis of technologies that let both external and internal superiors to know more about their subordinates' activities will help explain how a 'gap' between civilians and their military may influence internal control. Third, its discussion of how nanomanagement changes the costs, and preference, of *ex ante* and *ex post* controls strikes at the question of whether military professionalism is still needed in an era of nanomanagement.

Empirically, the study of these two armies' officers has broad applications. Governments around the world model their militaries after the U.S. and (to a lesser extent) British armies' organization, doctrine and tactics. How these two armies adapt to information technologies portends how armies of this and the next generation will organize, equip and fight. More specifically to the U.S. and the U.K., both governments face increasing budgetary concerns with Parliament already reducing their military budget and the U.S. Congress threatening to do the same (Burns, 2010). As these budgetary pressures mount, the pressure to do more with less costly tools will increase. How these militaries adopt these technologies and either retain or modify their existing structures will have lasting effects.

Further, nanomanagement is not only observed in the military. The military has long been seen as both a mirror and an instigator of organizational change in other government and corporate structures. While the technologies discussed in this thesis have military applications, they are not exclusively reserved to the military; as organizations, both public and private, adopt similar technologies that allow superiors to nanomanage subordinates, similar causes and effects may be observed. Where the most senior CEO is able to send instant messages to the lowest worker, where the Chief of Surgery can record and review a junior surgeon's operation, where a Cabinet official can demand information from the lowest street-level bureaucrat, the wider implications of nanomanagement will be felt for years to come.

As the technologies that enable nanomanagement are ever more available at ever lower cost, important questions must be answered. Does nanomanagement portend the death of subordinate autonomy? Can professions continue to exist in an era of nanomanagement? With more being observed, will all organizations gravitate towards Wilson's production type organization? Just because a superior can know more, must they know more? This thesis seeks to acknowledge that while nanomanagement may occur increasingly now and in the future, it is not inevitable. By offering a snapshot of empirical evidence of two similar professional organizations, taken at a critical moment of transition as these technologies were being adopted, this thesis may help to identify and manage what superiors and subordinates can expect in the near future.

1.5   Thesis outline

This thesis consists of eight chapters. Chapter 1 has introduced the concept of nanomanagement, the two research questions, and the factors by which the research

questions will be explored. Chapter 2 explains the research design, choice of case, subjects and the empirical methods. Chapters 3 through 7 will each separately focus on the factors introduced above, and present empirical evidence in the form of interviews, case studies and organizational doctrine.

Chapter 3 will discuss the factor of organizational culture, specifically how the U.S. and British armies understand autonomy and how they both incorporated technology into their doctrine. Chapter 4 then explores the factor of *ex ante* controls. Theories of professionalism will be offered with a discussion of the trust engendered by *ex ante* controls. Empirical findings concerning questions of trust will be analysed.

Chapter 5 delves more deeply into explaining the effect of nanomanagement on superior-subordinate relationships. Sub-categories of police patrols—trackers, drones and long screwdrivers—will be defined and discussed with the real world manifestations in Iraq explained. Focusing on the cost of *ex post* controls, empirical findings concerning questions of appropriate and inappropriate monitoring will be analysed. In Chapter 6, I examine the theories surrounding hierarchical control, specifically how technology influences three characteristics of military hierarchies—information flow, span of control and unity of effort. This chapter will focus on the tension of adopting network technologies while retaining a hierarchical organizational structure. *Shifting*, *drifting*, *grifting* and *ex claudere* controls will be defined and discussed. A case study of the mid-level officer exodus in the U.S. Army will help illuminate what I term the cycle of nanomanagement. Empirical findings concerning questions of evidence of *shifting*, *drifting*, and *grifting* as well as how nanomanagement influences the different levels of a hierarchy will be assessed.

Chapter 7 then moves outside the organization and explores exogenous factors of uncertainty and rising accountability. Empirical findings concerning the uncertainty of the environment, the uncertainty of an actor's role, and how these actors responded to calls for greater accountability will be analysed. Finally Chapter 8 serves as a concluding chapter, presenting a logic of nanomanagement. After discussing the thesis's contributions and potential for further research, I will then discuss the relative applicability of these findings outside the case of the military. Finally, I will conclude with a discussion of the future of nanomanagement.

1.6   Conclusion

This is a thesis about the tension between superiors and subordinates within organizations. Empowered by modern technologies, superiors have increasing ability to control their subordinates. In this chapter, I first defined nanomanagement and clarified why a discussion of five factors could both explain *why* it is occurring and *how* it influences superior-subordinate relationships. This analysis seeks to integrate a diverse body of literature to fully account for how and why technology is changing organizational behaviour and roles.

More than an organizational study, this is a study of conflict—the pressures to monitor against the imperatives to trust; the advantages and disadvantages of hierarchical organizations; the advantages and disadvantages of professions; the cost calculus of *ex ante* against *ex post* control; and the drive for accountability against the uncertainty endemic to contemporary environments. In Chapter 2, I will begin by outlining a case that uniquely captures this conflict and the complex factors that together explain both why and how nanomanagement exacerbates the tension between superior control and subordinate autonomy.

CHAPTER 2 Research design and methodology

The previous chapter outlined the conflict between superior control and subordinate autonomy, defined nanomanagement and discussed how this thesis will explore factors that explain the causes of nanomanagement and its effects. In this chapter, I will explain my overall conceptual design, case selection, instrument development and sample. Section 2.1 will discuss the overall conceptual design. Section 2.2 will outline the case selection and rationale. Section 2.3 will detail the instrument development. Section 2.4 will outline the procedures for identifying, gaining access to and interviewing the sample. In Section 2.5, the chapter will conclude by assessing the strengths and limitations of this design.

2.1   Conceptual design

As outlined in Chapter 1, the objective of this research is to examine both the causes of nanomanagement and its effects on superior control and subordinate autonomy. Three considerations guided this thesis's conceptual design.

First, many studies of control in public institutions use the organization as the unit of analysis, with one organization, usually an elected body, in a superior position to an unelected organization (e.g. how Congress controls a bureaucracy). This level of analysis has been successfully applied to understanding the military as an organization, and how it interacts with external organizations—the interorganizational approach (Avant, 1994; Coletta & Feaver, 2006; P. Feaver, 2003). However, in order to understand control between organizations (*inter*organizational control), this thesis looks at control within an organization (*intra*organizational control), or how internal superiors control their subordinates (Brehm & Gates, 1997, p. 21; James Wilson, 2000). This study uses the individual as the unit of analysis, specifically an individual's perceptions of superior-subordinate relationships (Geddes, 2003, p. 177). From this analysis of characteristics at the individual actor level, one may draw insight into an organization's characteristics (Yesilkagit & Thiel, 2008).

Second, to understand superior-subordinate relationships this thesis sees individuals as rational actors, a framework seen as promising in analyzing why individuals make choices to maximize their goals (Geddes, 2003, p. 25). This analysis is best suited to examine individual behaviour in hierarchies, where the relationships and rules that govern how actors interact with each other are clearly known and understood (Tsebelis, 1990, p. 32). By analyzing

individuals as rational actors I sought to build on previous work (Sowers, 2005) and apply this framework to understand behaviours as conditions, in this case access to new technologies, changed.

Third, when designing a study to capture comparative variance in a complex environment, the need for a single case allowing control of intervening variables is essential. The case study method is seen as the preferred strategy for research questions that begin with "why" and "how," especially for exploratory studies of contemporary events (Yin, 1994). Many military case studies compare amongst different conflicts, fought by different armies at different times in differing environments, exposing these studies to a variety of methodological questions, especially those of external validity. To that end, I sought a single case where variation could be controlled for internal validity, yet a case that could be generalized to meet the demands for external validity (Yin, 1994).

With these three considerations in mind, a case that could assess each of the five factors was required. First, to understand the role of culture in causing nanomanagement, I needed two organizations with distinct organizational cultures. Militaries have comparatively well-established and defined cultures that allow comparison (Adamsky, 2010; Nagl, 2005). Second, to examine the influence of *ex ante* controls, the case required professions performing professional work. As there is debate about whether the military not at war should be thought of as professional, I sought to examine the military at war (James Wilson, 2000). Third, to examine the effect of changing monitoring costs necessitated a case over a period long enough to capture the adoption of new technologies. This requirement forced me to examine conflicts of the past twenty years—during the adoption of 'modern' information technologies. Fourth, to assess the effect of nanomanagement on hierarchical control, it was necessary to analyse organizations with extensive hierarchies of executives, managers and operators. This meant I needed to assess militaries that contributed thousands of forces, in large hierarchical formations. Fifth, to examine contemporary exogenous factors, the case needed to be recent. And finally, to interview and collect data, I needed access to actors within these often closed professional organizations. The solution: mid-level officers of the U.S. and British armies that served in Iraq between 2003 and 2008.

2.2 Case selection and rationale

By answering "Why the U.S. and British armies?", "Why mid-level officers?" and "Why the Iraq War?" the following section will demonstrate how I met the unique demands of a single case to assess both causes and effects of nanomanagement.

2.2.1   Why the U.S. and British armies?

I first sought a case that could compare organizational cultures defined as the "persistent, patterned way of thinking about the central tasks of and human relationships within an organization" (James Wilson, 2000, p. 91). The organizational culture of the U.S. and British armies provides an exceptional lens for comparison. While professional in nature and bureaucratic in structure, they critically differ in their rate of technology adoption and doctrine concerning superior-subordinate relationships.[4] This thesis builds upon a previous study comparing officers of the U.S. and British armies during the Kosovo conflict (Sowers, 2005). U.S. Army officers stated they lacked autonomy and were tightly controlled by their military superiors. Conversely, British Army officers reported a low level of monitoring and conversely a high level of autonomy. By continuing the comparison between the U.S. and British armies' organizational culture, this thesis seeks comparative insights and avoids deeming one culture superior to another.[5]

After selecting the U.S. and British armies to be my case study's comparative frame, my case needed to select an appropriate level to assess superior control and subordinate autonomy. With hundreds of thousands of soldiers stretched across a variety of missions and conducting different roles at different levels within these hierarchical organizations, what level would provide the best lens to understand nanomanagement?

2.2.2   Why mid-level officers in the U.S. and British armies?

This thesis focuses on officers, mid-level officers specifically, as the ideal actors to assess the causes and effects of nanomanagement. Officers comprise an elite minority of both armies; they differ from the rest of the uniformed service (enlisted) in the selection and screening

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[4] This difference stems from the British Army's emphasis on discretion and a "tradition of flexibility, based upon the fact that through the colonial policing campaigns of the past [the British Army] had been forced to make do with only limited resources" (Pimlott, 1985) in contrast to the U.S. Army's strict hierarchical culture based on control modelled after World War II and the Korean war experience (Cassidy, 2005; Nagl, 2002).

[5] Scholars that compare militaries are often wont to look at outcomes, such as whether a war was won or lost, and pass normative judgment. Organizational cultures are neither good nor bad; yet they can be misaligned to organizational objectives or the operational environment (Gerras, Wong, & Allen, 2008).

criteria to join the military and the autonomy granted at a comparable time in service. The difference between officer and enlisted is important. While a high school degree is preferred in both the U.S. and British armies' enlisted ranks, a degree is not required to enlist. Upon enlistment, new soldiers attend a three (U.S.) to six (British) month basic training. After two years of service, an enlisted soldier will likely be a team leader in charge of two to four enlisted soldiers. After seven years, the enlisted soldier will likely be a sergeant in charge of a squad of eight to twelve enlisted soldiers.

The threshold for joining the officer corps is much higher. In order to receive an officer's commission in the U.S. Army, the vast majority of officers are required to attend a service academy (such as USMA) or participate in a Reserve Officers Training Corps (R.O.T.C.) program at a civilian institution.[6] These four-year programs include military and leadership training as well as earning an undergraduate degree. In the British Army, while officers are not required to be a university graduate, over 80% possess a post-secondary degree prior to entering the 48 week commission course at the Royal Military Academy at Sandhurst (U.K. Department of the Army, 2008b). Following this relatively extensive training, officers of both armies formally enter their service, commissioned in the rank of second lieutenants. An officer's first assignment is likely as a platoon leader (U.S.) or platoon commander (British), in charge of three squads or approximately 20-40 enlisted soldiers. After seven years, an officer will likely be a captain in command of a company of three platoons, or approximately 100-150 enlisted soldiers. Officers are granted far greater autonomy at far fewer years of service than enlisted soldiers.

As this thesis focuses on the conflict of superior control and subordinate autonomy, I sought what is thought to be the more professional part of two armies.[7] While this study does not assume every soldier or officer should be thought a professional, through strict training and selection, professional norms are thought to be more extant in the officer corps than in the enlisted (Huntington, 1957).[8]

[6] A U.S. Army commission may also be granted through Officer Candidate School (OCS). Candidates are required to complete a four year degree within one year of commissioning. For more on the various routes of commission, see 6.2.4.

[7] Chapter 4 provides an extensive discussion of professions.

[8] To limit the level of analysis this study focuses on the professional culture of the officer corps. Scholars have distinguished the relative professionalization of the enlisted and officer corps (Huntington, 1957; Janowitz, 1960; Pierce, 2010; D. M. Snider, et al., 2009). But the distinction between officer and enlisted is not the only method to parse professionalism. Indeed, each officer is a member of sub-cultural levels based on role trained for and executed on the battlefield (i.e. an infantry officer is trained to close with and kill the enemy while a signals officer is trained to maintain communications and repair radios) and assigned unit (i.e. 82nd Airborne Division and the U.K. regimental affiliation). These sub-cultures perform different tasks and are seen as distinct in their

Having narrowed my focus to officers, I did not want to analyse all officers. Brand new second lieutenants would likely offer starkly different observations than four star generals. Needing to select one level, at which level could officers be seeking to control subordinates while seeking to preserve their own autonomy? Low-level officers would have too many superiors and not enough subordinates. High-level officers would have too many subordinates and not enough superiors. The focus on the mid-level officer (captains and majors) offers a unique perspective. Organizational culture studies have often focused on mid-level managers as they provide a unique perspective with multiple levels of command existing both above and below their position (R. J. House, 2004). With multiple hierarchical levels below, mid-level officers can nanomanage. With multiple hierarchical levels above, mid-level officers can be nanomanaged. With their position, mid-level officers may also be excluded, with their superiors now able to nanomanage their subordinates.

Having selected an appropriate level of analysis within the U.S. and British armies, I finally needed to control for external variables. While many previous military studies compared between conflicts, I sought a single conflict where both armies operated, over a time period long enough to determine the effect of new technology on superior control and subordinate autonomy.

2.2.3 Why the Iraq War?

The time period of the case needed to capture armies at war for two reasons. First, war is where armies work. An army professional's task is "the management of violence" (Lasswell & McDougal, 1943, p. 208), or application of the abstract knowledge that separates it from other professions. As this study examines autonomy, the military profession is best examined when they are performing their professional task.

The Iraq War remains the largest engagement and major military action of the previous fifteen years. The Iraq War began on March 20, 2003. With the mission of disarming Iraq of weapons of mass destruction, two U.S. military (one Army and one Marine) divisions rolled north from Kuwait towards Baghdad as a small contingent of U.S. Army Special Forces secured northern Iraq. The British Army's First Armoured Division secured oil fields and ports in the southeast, near Basra. The invasion phase concluded on April 30, 2003 when Saddam

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value, belief, norms (Deal & Kennedy, 1982), and a number of scholars have examined these military sub-cultures in the U.K. and the U.S. (A. King, 2006; Kirke, 2009; Reed & Bullis, 2009; Stewart, 1991).

Hussein's home town of Tikrit fell to U.S. Marines.   Figure 2.1 shows the location of U.S. and British forces during this invasion phase.
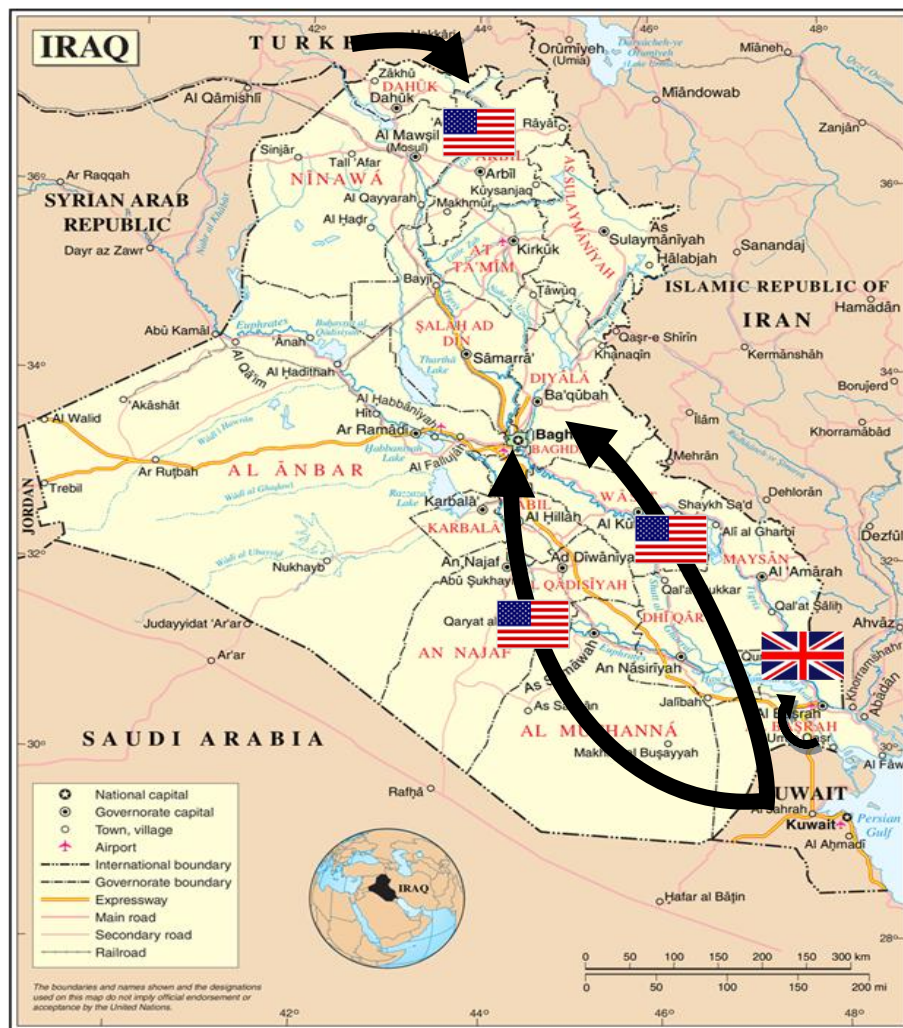
Figure 2.1 The invasion of Iraq (March-April 2003)[9]

From May 2003-July 2008, U.S. and British forces were assigned to multi-national division (MND) areas, where they occupied and developed large forward operating bases (FOBs). The British Army was responsible for a sector near Basra in the southeast. For the majority of 2003-2008, U.S. forces were responsible for the rest of Iraq. No longer fighting deployed echelons of the Iraq military, the coalitions engaged an increasingly diverse group of insurgents from former Ba'ath party members and Saddam loyalists, to insurgents tied to Al Qaeda in Iraq leader Abu Musab al-Zarqawi, to Shia groups sponsored by Iran, all the while seeking to create a safe and secure Iraq. Figure 2.2 identifies the largely static location of British and U.S. forces, between 2003 and 2008.

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[9] *Source of Iraq map (United Nations, 2011).* U.S. and U.K. invasion routes and icons generated by author.

Figure 2.2 U.S. and British forces post invasion (2003-2008)[10]

As this thesis examines superior-subordinate relationships, I required militaries that had deployed a large number of personnel. In the Iraq War, both armies conducted their largest deployment of the last 20 years. They also made up the first and second largest national contributors to the coalition accounting for over 95% of the committed troops in Iraq. Including additional armies was considered, notably the other 43 members of the Iraq War's "Coalition of the Willing". However, only the U.S. and British armies contributed forces above 10,000 troops during the invasion and consistently deployed forces above brigade (~3,500) level. This said, throughout 2003-2008, the size of the U.S. force dwarfed the British contingent by a factor of 8:1 to 30:1 (see Table 2.1).

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[10] *Source of Iraq map (United Nations, 2011).* U.S. and U.K. area of operations generated by author.

	2003	2004	2005	2006	2007	2008
U.S.	150,000	148,000	160,000	144,000	171,000	150,000
British	18,000	8,600	8,500	7,200	5,500	4,100

Table 2.1 U.S. and British forces in Iraq (2003-2008)[11]

Finally, the selection of 2003-2008 as the period of analysis captures both the exogenous factors pertinent to this study (uncertainty and rising accountability) and a dramatic expansion of technology adoption that occurred during this time. While the U.S. fielded technology at greater rates, in both armies, those that deployed in 2008 had vastly more technologies that could be used to nanomanage than those that deployed in 2003.

Having selected a unique case, I then sought to develop an instrument that could assess these two armies and the influence of five factors.

2.3   Instrument development

This study began with the intent of combining both quantitative (online survey) and qualitative (semi-structured interviews) methods to mitigate the disadvantages of single approaches (Denzin, 1970; Scandura & Williams, 2000). As outlined below, the quantifiable measurement of all five factors in one instrument proved complicated. From this insight, a robust qualitative approach was developed to provide the rich detail needed in an exploratory study. The thesis was further strengthened by using existing doctrine and case studies to triangulate the qualitative findings and establish external validity. The following section discusses the initial mixed method approach, and how the attempted and eventually discarded effort to employ quantitative methods nevertheless provided a useful path for what is ultimately a qualitative study.

2.3.1   Quantitative instrument

This study initially sought to employ a cross-sectional survey to assess perceptions of monitoring, relationships between subordinates and superiors, issues of liability and trust, the uncertainty and accountability of the environment, and ultimately how these factors influenced the work of a sample of U.S. and British mid-level Army officers. The challenges of survey research, most notably internal validity, and operationalization of variables (Zaller,

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[11] *Sources (O'Hanlon & Livingston, 2010), (CNN, 2010), (Ashley, 2010).*

1992) were all experienced in the piloting of a survey. In survey questions, operationalization of variables as diverse as culture, perceptions of trust and autonomy, degree of monitoring proved highly subjective.[12] In light of these challenges, I determined a pre-test would be employed to test the viability of a quantitative survey.[13] Following the pre-test, I conducted interviews to probe for confusion, vague terms, looking at difficult areas that consumed an inordinate amount of time, noting problems and any ambiguities.[14] Finally, I examined the paradata of the online survey—errors, navigation behaviour and reaction times—to look for inconsistencies. This piloting made clear the complexity of capturing the variability in the surveyed officer's perceptions. Three significant obstacles were identified that would inform the final instrument development: first whether the officer was a commander or a member of a staff; second, whether they changed jobs during a deployment; and third, whether they deployed multiple times.

First, in the U.S. and British armies, command and staff positions differ dramatically both in autonomy, hierarchical control, and in the nature of the work. In commanding a company, a mid-level officer is part of the chain of command. Clear lines of authority flow, from subordinates (platoon leaders, a lieutenant) to a single superior (battalion commander, a lieutenant colonel). In command, mid-level officers have clear superiors and subordinates of differing ranks at differing hierarchical levels.

In staff positions, officers are not part of this chain of command. While working on a brigade staff, officers usually report to their staff section leader, who then reports to the commander at that level. When serving in a staff position, mid-level officers have superiors but rarely have direct subordinates. To illustrate this variance, Table 2.2 identifies four sample mid-level officers all serving in a typical army division. The table shows the diversity of where within the division they could serve, whether they would be in command or staff at that

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[12] Furthermore, in employing an Internet-based survey, there were disadvantages of public accessibility and online format (Zhang, 2000, p. 59), privacy, and technical issues of access, speed and browser limitations (Fink, 2006). Concerns about the layout, format, and self-administration of web surveys have been raised (Baker, Crawford, & Swinehart, 2004). With these limitations in mind, in constructing a survey, I sought to make each question meaningful, use standard English with a slant towards the military vernacular, make the questions concrete for the subject (instead of postulating about superior/subordinate motivations, intents), avoiding biased words and phrases (earlier surveys included terms like 'micromanagement' which could have biased the results due to the normative understanding of this word), and trying to make each question include a single thought/observation (Fink, 2006).

[13] Pretesting has a long tradition in the administration of survey questionnaires. Between 12-50 cases has been considered sufficient for identifying flaws in the design and application of the survey (Rossi, Wright, & Anderson, 1983). From February 16-25, 2008, I conducted an initial online survey of 15 U.S. Army officers based at USMA.

[14] These methods are consistent with those proposed in (Baker, et al., 2004, p. 372).

organizational level, and where their immediate superior (1 UP), second level superior (2 UP), immediate subordinate (1 DN) and second level subordinate (2 DN) would be within a typical army division.[15]

	Position	Role	1 UP	2 UP	1 DN	2 DN
	Company Commander (CO CDR)	Command	Battalion Commander (BN CDR)	Brigade Commander (BDE CDR)	Platoon Leader (PL)	Squad Leader (SL)
	Battalion Operations Officer (BN OPS)	Staff	Battalion Commander (BN CDR)	Brigade Commander (BDE CDR)	Battle Captain (BN BTL CPT)	None
	Brigade Assistant Operations Officer (BDE A/OPS)	Staff	Brigade Operations Officer (BDE OPS)	Brigade Commander (BDE CDR)	None	None
	Division Battle Captain (DIV BTL CPT)	Staff	Division Assistant Operations Officer (DIV A/OPS)	Division Operations Officer (DIV OPS)	None	None

Table 2.2 Mid-level officer positions and superior-subordinate relationships

Table 2.2 shows that four officers of equivalent rank, depending on their assigned role, could experience a variety of superior-subordinate relationships. Only one (CO CDR) has multiple levels of superiors and subordinates. Two officers (BDE A/OPS and DIV BTL CPT) have no subordinates; these two officers' 1 UP and 2 UP superior can be found within their organization level.   In order to capture this variance in a quantitative survey, I created a series of questions specifically focused on identifying when, and in what function (command or staff), subjects served while in Iraq. As many questions for commanders did not apply to staff positions (e.g. "How did you control your subordinates?" would not be answered by BDE A/OPS or DIV BTL CPT), I created different subsets of questions that would be answered depending on whether the respondent was serving in command or in staff positions.

Further, officers of mid-level ranks often served on staffs at various levels in the organization. Table 2.3 shows another challenge of using a survey with the same four sample officers now placed within an organizational chart.

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[15] These positions could be in either the U.S. or British armies.

2UP: DIV OPS
1UP: DIV A/OPS
DIV BTL CPT [Division] **Division level** (~10,000 personnel)
Mid-level officers only in staff

2UP: BDE CDR   2UP: BDE CDR   2UP: BDE CDR
1UP: BDE OPS [Brigade] **Brigade level** (~3,000 personnel)
BDE A/OPS Mid-level officers only in staff

1UP: BN CDR   1UP: BN CDR
BN OPS [Battalion] **Battalion level** (~1000 personnel)
1DN: BN BTL CPT Mid-level officers only in staff

CO CDR [Company] **Company level** (~100-200 personnel)
Mid-level officers only in command

1DN: PL LDR [Platoon] **Platoon level** (~20-40 personnel)
No mid-level officers

[Squad] **Squad level** (~5-10 personnel)
2DN: SQ LDR No mid-level officers

Figure 2.3 Mid-level officer positions and variance in superior-subordinate relationships

In Figure 2.3, the four sample mid-level officers serve at different organizational levels. Only one (CO CDR) is in command. While all have multiple levels of superiors above them, only one (CO CDR) has multiple levels of subordinates below them; two mid-level officers have no subordinates. Three (CO CDR, BN OPS, and BDE A/OPS) share the same two up superior (BDE CDR). Two (CO CDR and BN OPS) share the identical superior, even as they operate in different roles. One (DIV BTL CPT) shares no superiors or subordinates.

Second, between 2003 and 2008, the length of Iraq deployments in both armies increased from four, to six, to twelve and eventually to as much as fifteen months. As the deployments grew in length, officers often changed positions during a deployment. For example, a captain could serve the first six months of a deployment commanding a company (CO CDR) and then be reassigned to the staff of a division (DIV BTL CPT). Each position, on each deployment could and did have wide variance in my assessed factors; a survey that forced respondents to produce one answer for an entire deployment would fail to capture this variance.

In attempting to overcome this, after the substantive portion of the survey, the survey asked, "Did you change jobs during this deployment?" If the answer was yes, the respondent was asked whether this was a command or staff job and then was asked to repeat the substantive portion, assessing perceptions from the new position. During the pilot, non-response rates increased dramatically on the second and subsequent iterations.

A third deficiency identified in the pre-test was capturing multiple deployments. As the conflict had been waged for over five years prior to the survey, numerous officers had served multiple deployments. Respondents of the pilot survey suggested that issues of monitoring, trust and control varied widely dependent on the time period deployed. For example, those deployed during the initial conflict might report dramatically different perceptions then those deployed later. Instead of aggregating what could be very different experiences, I sought to capture these as separate data points, providing a valuable comparative within single subjects.

My attempted solution to retain the quantitative portion was creating a further iteration of the survey. After completing the substantive portion of the survey for one deployment (which might have to be completed multiple times dependent if the officer changed positions), a final question was asked, "Did you have a second deployment to Iraq?" If the answer was "No," the survey concluded. If the answer was "Yes," the subject was directed to answer all substantive questions again. At the end of this second iteration, the final question was "Did you have a third deployment to Iraq?" If the answer was "No", the survey concluded. If the answer was "Yes," the subject was directed to complete a third iteration.

For example, one respondent had deployed twice to Iraq. In his first deployment, he started as a commander, serving in this role for nine months. He then served as a division staff officer for three months. On his second deployment, he served as a battalion staff officer for the entire twelve months. In order to capture the complexity and differentiation of his work, this officer would need to take the substantive portion of the survey three times. While a subject such as this respondent could provide the richest detail in comparison, it was observed that most participants chose to only fill out only one iteration of the survey and non-response rates were deemed unacceptable (Zaller, 1992).

The complexity of the factors needing to be assessed and the unique nature of the subjects changing positions and multiple deployments made the quantitative survey infeasible as a tool of analysis. However, the weaknesses identified when formulating and testing the survey approach proved useful in highlighting the need for an approach that captured the variety of superior-subordinate relationships, over time, over multiple deployments.

2.3.2   Qualitative instrument

Intended to describe the nuanced understandings and interaction between actors, the qualitative interview is seen as more suitable than surveys (Weiss, 1994). As the study needed to assess five different influencing factors, that nevertheless are contextual and often overlap, the qualitative method applied to a case study is recommended by Yin when "the boundaries between phenomenon and context are not clearly evident" (1994, p. 13). Further, qualitative methods are recommended in exploratory studies of new concepts (Marshall, 2006) and as the preferred method to analyzing contemporary events (Yin, 1994).

Consistent with critiques of qualitative methods, the recollections of army officers removed from the battlefield could surely be coloured through the warm glow of memory (G. King, Keohane, & Verba, 1994; Kvale, 2007; Kvale & Brinkmann, 2008). To supplement these invariably subjective recollections, I sought first to compare between two armies and second to exceed the recommended "upper limit" of 15-25 individual interviews recommended for a project by a single researcher (Bauer & Gaskell, 2000, p. 43). 52 total interviews were conducted.

The semi-structured interview was piloted at West Point from April 15-May 15, 2008. Five subjects participated in the pilot interview. I followed an interview guide (See Appendix 1) allowing respondents to discuss their relationships with superiors and subordinates, their work in Iraq, how they were controlled by superiors, how they sought to control their subordinates and explored issues of autonomy and trust. I ended the interview by asking subjects to describe incidents of severe monitoring and control of their activities. The interviews provided opportunities for probing observations.

Following the pilot, I identified problems with my note taking in both speed and accuracy. I then decided to employ a more structured, computer-based form (See Appendix 2). This allowed quick drop down menus to capture and code biographical data, as well as open fields to type as I interviewed. Further, I noted that the semi-structured interviews benefited from the lack of "social distance" afforded by my own position and rank as a mid-level officer in the U.S. Army (J. Miller & Glassner, 2004). My familiarity with rank structure, staff positions, superior-subordinate responsibilities, organizational culture as well as the equipment, tactics and locations specific to the Iraq War enhanced the internal validity of the data. Where the quantitative survey proved difficult to assess multiple deployments in multiple roles, the qualitative interview allowed me to probe and provide comparisons within the same subject.

The final semi-structured interview was based on a small number of structured questions combined with open-ended, exploratory questions, the answers to which were actively probed for elaboration. Interviews were recorded and later transcribed. The qualitative data will be presented in each of the core chapters (Chapters 3-7). For brevity, in the reported findings verbal tics and crutches (e.g. "you know", "uh", etc.) were removed. For clarity and to protect anonymity, specific unit locations and references to physical locations were removed; in addition references to superiors and subordinates were replaced with codes introduced above.[16]

2.4   Sample

While the decision to interview mid-level officers of the U.S. and British armies narrowed the focus, identifying and gaining access to subjects of like experience posed a challenge. For logistical and security reasons, surveying officers in Iraq was not a viable option. As the interviews were conducted in the summer of 2008, when the U.S. Army had the highest number of personnel deployed to Iraq, this limited the available pool of subjects not in theatre. Further, the desire to assess officers across a wide variety of units ruled out going to one unit at one location and surveying officers there. What was needed was a location where a diverse set of both armies' mid-level officers gathered, where they could be accessed, and where they would have interest in participating in an academic study.

With these limitations, I chose to survey and interview officers of both armies during mandatory training periods. In both armies, officers are trained at periodic intervals in their career. Usually coinciding with a change of rank or authority, both armies have created schools to provide professional training at these key inflection points.

2.4.1   Procedures

For mid-level officers in the U.S. Army, this training occurs at the Command & General Staff College (CGSC) located at Fort Leavenworth, Kansas where mid-level officers attend Intermediate Level Education (ILE). Following company level command and falling roughly at the eleven year mark of service, ILE is an eleven-month course for newly promoted U.S. Army majors. For mid-level officers in the British Army, this training occurs at the Joint Service

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[16] For example, if an officer served in as a company commander and said "my battalion commander and the 1st Infantry brigade commander both watched what my platoon leaders were doing" was replaced with "my [1UP] and [2UP] both watched what my [1DN] were doing."

Command and Staff College (JSCSC) located at Shrivenham where mid-level officers attend the Intermediate Command & Staff Course (Land) (ICSC(L)). The ICSC (L) is a 30 week course for all British Army and Royal Marine majors (Hill, 2008).

Comparing students of two schools, in different armies presents equivalency problems. However, there is a unique equivalency between ILE and ICSC(L), in that officers are often exchanged between these two schools to serve as both instructors and students. Furthermore, there is a formal partnership between ILE and ICSC(L). As a culminating exercise for both schools, ICSC(L) students travel to Fort Leavenworth to conduct a two week joint exercise with their peers in ILE. This relationship is unique and shared only between these two mid-level officer schools, and only these two national armies, providing the closest equivalency possible.

Permission to survey and interview mid-level officers was obtained by presenting and gaining approval from the staff of each school. For each group, I gained approval from the senior administrators and commanders of their respective colleges (CGSS and JSCSC) which eased approval at the school level. Access to British subjects was obtained through the leadership of the JSCSC. In February 2008, I travelled to JSCSC and met with the chief of staff of ICSC(L). There, I proposed my research methodology and objectives. Permission was granted in February 2008 and data collection was set for May-June 2008. Access to my U.S. subjects was obtained through the CGSC's Quality Assurance Office. In March 2008, I submitted my proposed research methodology and objectives, in accordance with CGSC procedures. I also contacted the Chief of Staff of ILE. Permission was granted in May 2008 and I collected my data at Fort Leavenworth, Kansas in June 2008.

As part of the approval process, I made it clear that the individual results of both the survey and interview would offer anonymous attribution. As the research seeks both theoretical and practical application, I emphasized that findings would be reported to the administration of both schools. Participation in the interviews was requested but not made mandatory. 90% of the interviews were recorded. Due to the classified nature of the content discussed in the interviews, five subjects preferred not to have their audible voice recorded; in these circumstances I received approval to type notes as the interview was being conducted. At the end of these interviews, I went back over my notes with the interviewees to allow any clarifications. All interviews were later transcribed.

2.4.2   The U.S. Army sample and British Army sample

The research involved two months of fieldwork. I conducted a total of 52 interviews of mid-level officers, 31 from the British Army and 21 from the U.S. Army. These 52 subjects had deployed a total of 72 times, and through these deployments had held 84 unique positions. Table 2.3 represents the diversity of the sample, in both command and staff positions as well as experience across the five years of the case.

	Position During Deployment				Year of Deployment				
	Company	*Battalion*	*Brigade*	*Division+*	*2003*	*2004*	*2005*	*2006*	*2007*
U.S. (n = 32)	11	10	5	6	5	5	5	11	6
U.K. (n = 40)	19	17	2	2	15	6	9	3	7
Total (n = 72)	30	27	7	8	20	11	14	14	13

Table 2.3 Sample by position and year of service in Iraq

Purposive sampling based on experience, notably deployed experience in Iraq, was employed such that those who were not Iraq War veterans were eliminated from consideration. For the British sample, students were drawn from ICSC (L) Course 4A. The chief of staff of ICSC (L), Lieutenant Colonel David Hill, identified the Iraq veterans and organized the interview schedule, providing me with an office to conduct the interviews. All interviews were conducted face to face at the JSCSC. For the U.S. sample, subjects were drawn from ILE class 08-02. The Director of ILE, Colonel William Raymond identified the Iraq veterans and allowed me to contact them to request an interview. Colonel Raymond also provided an office to conduct interviews. All interviews were conducted face to face at the CGSC Headquarters.

2.4.3   Limitations of the sample

While the strengths of the sample and its unique characteristics have been outlined above, there were numerous limitations. The sample could have been greatly strengthened by including mid-level officers that had left military service. As will be further explored in Chapter 6, there is evidence that many mid-level officers left military service because of the lack of autonomy and level of superior control. The sampled officers, by their attendance at mid-career training, biases the sample towards officers committed to a military career and indicates an acceptance or at least tacit submission to the organizational culture. While I explored expanding the interviews to peers and others I personally knew who had left

military service, I determined that the surveying of two classes of career officers allowed for a control that would be lost by expanding to a larger group. Therefore the sample queried will likely have a much higher level of perceived appropriateness of superior control than a larger random sample of *all* officers that served in Iraq. This study is a convenience sample reflecting a population of career military officers, most of who had the option to leave the profession following their tours in Iraq but invariably did not.

Furthermore, as these officers were identified by course administrators, there is the possibility of the halo effect in response to these questions where the subjects respond in the way they think they should answer instead of stating their true feelings (Nisbett & Wilson, 1977). I sought to mitigate this by offering all subjects anonymous attribution as well as interviewing 52 officers with 72 separate deployments to control for individual actors that could skew the entire sample.

I further sought to limit observer bias, by conducting the interviews in civilian clothes, using standardized language and not interviewing peers or those with which I had any direct association. The inclusion of the British Army assisted in creating a degree of social distance in my observations. My background provided unique access to subjects to which I shared common experiences, allowing me to more quickly sense opportunities in a way that someone unfamiliar with the difference between a battalion and corps commander, or between Predator and Raven UAVs could not.

2.5   Conclusion

This chapter described the step-by-step process from the initial research questions, to selecting a conceptual design, to identifying an appropriate case and level of analysis, to development of instruments and finally to collecting data.

In conclusion, the choice of comparing mid-level officers of the U.S. and British armies in Iraq offers empirical data pertinent to the five factors of this study. Given the richness and diversity of factors the thesis sought to explore, as well as the limitations of a quantitative approach, the research methods employed provided the data needed for an exploratory study such as this. In addition, my background as a U.S. Army mid-level officer who had twice deployed to Iraq greatly benefited the thesis. This background provided me familiarity with the subjects and a degree of access that would have been difficult for a researcher without experience in the military culture.

Part of that military culture is a can-do ambition. While my initial desire to conduct a combined method approach proved infeasible, the iterative process allowed for important discoveries that informed the final data collection. Just as culture influenced my research design, the next chapter begins the empirical analysis by analyzing the differences in the organizational culture of the U.S. and British armies, and how these cultures influenced superior control and subordinate autonomy.

CHAPTER 3 **Culture**

As discussed in Chapter 1, many factors could determine the causes and effects of nanomanagement. Before assessing these factors, it is important to establish a baseline— the general beliefs and accepted practices of superior control and subordinate autonomy. The study of culture sees organizations affecting and instilling those general beliefs and accepted practices, patterning ways of thinking and interacting with others (Cameron & Quinn, 2006; Schein, 2010; James Wilson, 2000). Organizational culture serves as the accreted knowledge of best practices, as guidelines that actors expect to follow and be followed by other members of an organization. Often these guidelines are codified in written doctrine. This doctrine and how this doctrine is or is not practiced helps explain the degree of superior control and subordinate autonomy an actor can expect by being a member of an organization. In organizations whose doctrine advocates for subordinates to be granted broad autonomy, one would expect less superior control.

Yet expectations, and culture, may change. While culture is seen as resistant to change, technology has long been thought disruptive of culture, instilling new patterns of thinking and interacting with others (Barnard, 1938; Giddens, 1984; Giddens & Pierson, 1998; Schein, 2009). Strong organizational cultures may shape how technology is employed but weak organizational cultures may be shaped by technology (Farrell, 2008).

This chapter analyses organizational culture as an explanatory factor that may determine why nanomanagement occurs. By examining the doctrines of autonomy of both the U.S. and British armies, this thesis begins to assess whether individuals in certain organizations, by virtue of their stated culture, are more or less predisposed to nanomanage. In order to address whether the cultures of the U.S. and British armies cause or inhibit nanomanagement, this chapter seeks three objectives: first, to clarify the doctrinal understandings of autonomy in each of these cultures; second, to explore the doctrinal understandings of how, when and to what degree new technologies should affect autonomy; and third, to present the empirical findings of how both armies' officers perceived and experienced autonomy as more technology was fielded in Iraq. Furthermore, by establishing how both armies incorporated the use of technology into their doctrines, one can assess how malleable or entrenched culture should be considered. Did culture shape how technology was employed or did technology shape culture?

Section 3.1 defines organizational culture and establishes the typology by which organizational culture is assessed—through artifacts, values and basic underlying assumptions of appropriateness. Section 3.2 will examine the U.S. and British armies' organizational culture regarding autonomy, how it developed and how it is codified in their doctrine. Section 3.3 will examine both armies' organizational culture concerning the adoption of information technology. Section 3.4 will present empirical findings. Section 3.5 will conclude.

3.1　What is organizational culture?

Before analyzing whether an organization's culture may predispose or inhibit an individual's proclivity to nanomanage, this section defines organizational culture and proposes a typology useful in comparing two organizations.

3.1.1　Defining organizational culture

As both the U.S. and British armies define culture along similar terms, this thesis adopts Wilson's definition that an organization's culture is "a persistent, patterned way of thinking about the central tasks of and human relationships within an organization" (2000, p. 91).[17] Military organizations are thought to have strong and unique organizational cultures, formed through shared sacrifice and intense experiences (Huntington, 1957; Janowitz, 1960, p. 6; Pierce, 2010; Schein, 1990, p. 111; D. Snider, 2005; D. M. Snider, et al., 2009; Van Creveld, 2008, p. 335).

As organizational cultures are "embedded in the national cultures in which an organization operates" (Schein, 2009, p. 61), there is a tradition of cross-national cultural comparison between like organizations (Hofstede, 1984; R. J. House, 2004; Ronen & Shenkar, 1985). While some scholars see that the unique nature of a military organization inherently deviates from national cultures (Van Creveld, 2008), others see armies largely reflecting the societal culture from which they spring (Nagl, 2005; D. M. Snider, et al., 2009).

While all armies differ, few armies are thought to share more in common in their organizational culture than the U.S. and British armies. Scholars have observed a special

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[17] The U.S. Army defines culture as "a group's shared set of beliefs, values, and assumptions about what's important" (U.S. Department of the Army, 1999b, pp. 2-14). The British Army defines its culture as "the socially transmitted pattern of human behaviour within the organization" (U.K. Ministry of Defence, 2010a, pp. 2-18).

relationship between Britain and the U.S. where the two armies enjoy the closest strategic and military ties (Dunne, 2004; Farrell, 2008). They share a "warrior culture" common in Western armies (Coker, 2007; Van Creveld, 2008), have broad similarities of civilian control (Avant, 1994) and their military cultures share a professional officer tradition. In addition, few services share more in hierarchical structure, participation in contemporary warfare and exchange of officers than these two armies.

Yet differences between the U.S. and British armies' organizational culture have been noted (Kier, 1995, p. 66), in particular how different values concerning superior control and subordinate autonomy influenced mission accomplishment and military effectiveness (Nagl, 2005; Sowers, 2005).[18] By choosing a case where both armies were present, seeking to broadly accomplish the same goals, a typology is needed that can adequately compare two relatively similar, but subtly and importantly differing cultures.

3.1.2   A typology for comparing cultures

In order to compare these two armies' organizational cultures and autonomy, I adopt Schein's typology that organizational culture occurs at three levels: artifacts, values and basic underlying assumptions (2010).[19]

Artifacts are visible expressions, the manifestation of culture that can be observed in individuals' relationships and actions (Schein, 1990, 2010). An organization's hierarchical chart, the use of technology by its actors, the use of titles and ranks and the "[e]asy to observe" behaviour of the group can all be considered artifacts (Schein, 1990, p. 17).

Values are the espoused statements that provide a "philosophy of operating" that give guidance to overcome the uncertainty that organizations face (Schein, 1990, p. 21). In the military context, values manifest as written doctrine. Regardless of whether a written doctrine is followed, and they are often ignored (Farrell, 2008; Kirke, 2010), military doctrine

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[18] Comparisons of militaries' organizational cultures are often tempted to look at outcomes, such as whether a war was won or lost, and pass normative judgment. This thesis does not seek to adhere to a trend of deeming organizational cultures as either good or bad. There is not a right or wrong culture; culture simply is, except in relation to what the organization is seeking to accomplish in a specific environment (Gerras, et al., 2008; Schein, 2009).

[19] Schein's typology has been employed and referenced in cultural studies of professions (Bloor & Dawson, 1994), autonomy (Carroll & Quijada, 2004; Hendry, 1995), and the use of technology by superiors to control subordinates (Heejun Park, 2004; Schein, 1994). Further Schein's typology dominates organizational cultural studies of both the U.S. (Carpenter, 2006; Casmus, 1997; Pierce, 2010; D. M. Snider, et al., 2009; Tucker, 2008) and British Army (Cassidy, 2005).

dictates what members of the military should do. Both the U.S. and British military share a common definition of doctrine as the "fundamental principles by which the military forces…guide their actions" (U.K. Ministry of Defence, 2008, p. iii; U.S. Department of Defense, November 8, 2010, p. 114).

However, only once those values are actually acted upon and ingrained into the organization's culture do they become *basic underlying assumptions*. A basic underlying assumption is a value "translated into actual behaviour" (March & Olsen, 2004, p. 7), the "nonconfrontable and nondebatable" ethos that organizational members accept as the appropriate practices of the organization (Schein, 2010, p. 28).   Extremely difficult to change, a basic underlying assumption is doctrine that is tested, accepted and taught to new members of the organization as the way an organization operates and does business. Only when the value is accepted as correct and appropriate does it become a basic underlying assumption.[20]

Of course doctrine need not always be followed; there will always be a distance between theory and practice. This typology and empirical analysis allows a determination of how great the distance is. This typology of artifacts, values and basic underlying assumptions proves useful in determining culture as an explanatory variable. Where artifacts can be observed and measured (e.g. observations of how a superior controls a subordinate), these are conditioned by the organization's understood values (e.g. the doctrine of autonomy). Furthermore, the nature of the qualitative approach employed seeks to capture the basic underlying assumptions (e.g. the beliefs of what is an appropriate level of control). What is important to draw from this typology is that organizational culture is not simply what is observed in a case, or an organization's stated doctrine. As Holmes observed, "Seldom is the difference between an organization's external appearance and its inner reality more marked than in the case of the British Army. It appears hierarchical, regimented and disciplined, but is often collegiate, tribal and comfortable" (2009, p. xii).

In sum, organizational culture has been seen as a powerful factor to predict behaviour. When analyzing the degree an organization's culture could cause nanomanagement, this thesis seeks to explore beyond the observable artifacts and values of both armies, and deduce the underlying assumptions of these two armies at war. Table 3.1 diagrams the

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[20] For example, a value is if an organization's doctrine states that subordinates should be granted autonomy. An artifact is if we can observe subordinates being granted autonomy. A basic underlying assumption is whether actors assume the stated value to be correct, that it is assumed that subordinates *should* be granted autonomy.

typology and its application to the two dimensions—autonomy and the use of technology—discussed in this chapter.

	Definition	Autonomy	Use of technology
Artifacts	Observed practices	Recollections of superior-subordinate relationships	Recollections of how technology was adopted, employed and its influence on autonomy
Values	The written rules of an organization	Published doctrine of superior control and subordinate autonomy	Published doctrine concerning technology adoption, and its influence on autonomy
Basic underlying assumptions	Practices deemed appropriate	Recollections of whether control/autonomy was appropriate	Recollections of whether technology allowed inappropriate monitoring and reductions in autonomy

Table 3.1 Organizational culture typology applied to this thesis

3.2   The doctrine of autonomy in the U.S. and British armies

Having defined organizational culture and introduced a widely accepted typology for analyzing cultures, this section first discusses the variability of autonomy then assesses how autonomy varies as a value in the written doctrine of the U.S. and British armies.

3.2.1   The variability of autonomy

Subordinate autonomy varies across different organizational cultures. In organizations of low subordinate autonomy, superiors expect and receive obedience, using rank and titles to rationalize a large difference in autonomy between high and low levels of a hierarchy (Hofstede, 2001). In organizations of high subordinate autonomy, subordinates are expected to act with initiative (R. J. House, 2004, p. 513). Low subordinate autonomy "may be favored in military-type organizations, even if the societal culture is of [high subordinate autonomy]" (R. J. House, 2004, p. 534). Further whether the organization examined is professional or not also influences subordinate autonomy. Unskilled workers tended to be found in organizations of low subordinate autonomy. With more skills and education, professional

workers are typically found in organizational cultures of high subordinate autonomy (Hofstede, 2001).[21]

In two studies that compared values of autonomy amongst nations, the U.S. and the U.K. were found to have a similar societal level of subordinate autonomy (Haire, Ghiselli, & Porter, 1966; Hofstede, 1984; R. J. House, 2004). Yet, studies comparing the U.S. and British armies noted distinct difference in beliefs about autonomy and suggested these different beliefs led to different approaches in war (Cassidy, 2005; Nagl, 2002). A previous study comparing officers of the U.S. and British armies during the Kosovo conflict found differences in the amount of control exerted by superiors and the related amount of autonomy granted to subordinates (Sowers, 2005). U.S. Army officers reported being highly controlled and lacking autonomy.[22] British Army officers reported a low level of superior control and a high level of autonomy granted. British Army officers often spoke of a doctrine of "mission command," a stated value where superiors give subordinates a clear intent and then allow them the latitude to operate as they saw fit. While this command philosophy was a key difference between the U.S. and British armies, mission command began not in the British Army, but in the Prussian Army in the nineteenth century.

3.2.2   *Auftragstaktik* and the value of autonomy

Few events cause an organization to rethink its values, beliefs and rules more than a crushing defeat (March & Olsen, 2004). Much of the U.S. and British armies' current doctrine concerning autonomy draws from lessons learned from Napoleon's decisive defeat of the Prussians in 1806 at Jena. In the aftermath, Prussian military leaders concluded that commanders removed from the battlefield could not gain a clear picture of what was occurring at the front (Silva, 1989). Those that had a clear picture of what was occurring— the junior and mid-level officers at the front—were not granted enough autonomy to act on their own initiative. Constrained by a rigid command structure and a bureaucratic *Befehlstaktik* (orders based tactics) junior leaders awaited orders; while they waited, they were defeated (C. E. White, 1989). Seeing battle as invariably uncertain, the Prussians

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[21] As further discussed in Chapter 4, as a profession the military culture seeks expertise over an area of abstract knowledge (A. Abbott, 1981; Hughes, 1965a; Huntington, 1957; Lynn, 1965b). Once that knowledge is acquired, usually through specialized training, professionals defend this autonomy (A. D. Abbott, 1988; Lynn, 1965b). This expectation of autonomy is a common attribute to the generic professional military organizational culture.

[22] Many U.S. officers, while tightly controlled saw this control as appropriate, with many reporting favourably on national military superiors being closely involved in their day to day activities (Sowers, 2005).

developed a concept called *Auftragstaktik* (mission-based tactics). Institutionalized by the Prussian Army in 1870, after years of experimentation, *Auftragstaktik* was observed by the British as a key source of Prussian, and later German, military effectiveness, characterized by wide autonomy in subordinates (Silva, 1989; Van Creveld, 2008).

Auftragstaktik required not simply a change in superior-subordinate relationships but an entire reorganization of the Prussian military. *Auftragstaktik* depended on autonomous subordinates, which requiring substantial investments in training and selection. Once these subordinates were trained to take initiative and exercise their own judgements, superiors loosened their controls allowing subordinates the discretion to execute the mission and make decisions as they saw fit (Kolenda, 2000). While empowering to junior officers, *Auftragstaktik* constrained senior leaders to act at their strategic level and to limit the specificity of their orders to subordinates (Silva, 1989).

While *Auftragstaktik* ran counter to the centralized control of massed armies and trench warfare of World War I, its effectiveness was demonstrated in the opening days of World War II. With the British Army's rapid defeat and expulsion from France by Germany's *Blitzkrieg*, the British Army was found "ill-prepared" due to a "rigidity of command and extant culture militated against developing independent thought" (Sheffield, 2010, pp. E-14). Like out of defeat at Jena a century before, out of defeat at Dunkirk, a new doctrine of autonomy was needed.

3.2.3   British Army's doctrine of autonomy—mission command

Based on both Prussian *Auftragstaktik*, yet reflecting a broader British culture[23], mission command is considered "the central pillar of Joint and Army doctrine" (U.K. Department of the Army, 2005, p. 115). Mission command seeks to balance superior control with subordinate autonomy. Mission command depends on trust and mutual understanding between superiors and subordinates. (U.K. Ministry of Defence, 2008; 2009, pp. 3-2). Not an ancillary reference in British military doctrine, mission command is the *sine qua non* of the

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[23] King attributed the development of this style of command to the "strange structure" originating in the expeditionary nature of the nineteenth century British Army, and the lack of strong interventionist state (2011). Further, King saw the roots of mission command in the broader British culture: "The British instinct for muddling through without an overarching strategy by which to impose centralized order and discipline, and for deferring to the local commander, seems to be a reflection not only of British military culture but also of British professional society more generally" (2011, p. 393).

British Army culture.[24] In the updated British Army operations manual published in November 2010, mission command is elevated to one of two central ideas of the British Army's "enduring philosophy for operations" (U.K. Ministry of Defence, 2010a, pp. 1-3). The British Army's current doctrine of mission command has five essential elements:

> a. A commander gives his orders in a manner that ensures that his subordinates understand his intentions (intent), their own missions, and the context of those missions.
> b. Subordinates are told what effect they are to achieve and the reason why it is required.
> c. Subordinates are allocated sufficient resources to carry out their missions.
> d. A commander uses the minimum level of control possible so as not to unnecessarily constrain his subordinates' freedom of action.
> e. Subordinates then decide how best to achieve their missions. They have a fundamental responsibility to act in line with their commander's intent (U.K. Ministry of Defence, 2010a, pp. 6-11).

Despite its current centrality to British Army culture, mission command was only relatively recently established in doctrine. For much of its history of largely successful military activity, the British Army operated without formal doctrine (Nagl, 2005). Instead, a semi-formal doctrine of unofficial writings, officer memoirs and best practices was shared (Sheffield, 2010). Prior to the formal development of doctrine, "To most officers there was no such thing as 'doctrine', only 'pamphlets' and they were, at best a basis for discussion, and for quoting in promotion exams" (Sheffield, 2010). This lack of formal doctrine can be seen as also influencing British Army culture—without a formal written document prescribing behaviour subordinates were left largely to their own devices. A strong value of subordinate autonomy, represented in widely dispersed units conducting operations as the environment dictated and the on-the-ground commander decided, was well inculcated prior to putting these terms to official paper (Sheffield, 2010).

This informal tradition changed in the late 1980s and early 1990s as the British Army began to publish official doctrine or what was termed "that what is taught" (U.K. Department of the Army, 1989, p. 3).[25] Even this relatively late codification of values was done so with

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[24] Not all commentators believe mission command should be so central to British Army culture. Critics have called the British Army's mission command "a *laissez-faire* command system" (A. King, 2011, p. 390), stating that mission command "was not in any way intended to give subordinates free rein to do as they pleased and to structure campaigns in a manner of their own choosing" (A. King, 2011, p. 390).
[25] Why a centuries old institution should suddenly seek to codify its values in written form deserves some discussion. Sheffield argues that key British Army leaders recognized the inadequacy of the current strategy to counter the Soviet Union, a surge of doctrinal development in the U.S. following Vietnam, an increasing professionalization of the officer corps in terms of both their pre-service and during service education, and a political climate that made the battlefield use of nuclear weapons unacceptable (2010). What Sheffield does not mention but will be later discussed in Chapter 7, was the dramatic rise of the risk management and external audit of government agencies that required a broad formalization of procedures and practices (Power, 1994).

caution. Recognizing that formal doctrine was anathema to British Army culture, the Chief of the General Staff stated,

> "This does not mean that initiative needs to be restricted by the imposition of a set of rules…the doctrine it sets out will need to be interpreted intelligently and applied as circumstances require. Such judgements call for professionalism" (U.K. Department of the Army, 1989, p. vii).

3.2.4   U.S. Army's doctrine of autonomy—mission command

While the British Army's adoption of doctrine cautiously began in the late 1980s, the U.S. Army has a far longer history of formal written doctrine. The U.S. Army began publishing doctrine early in the twentieth century, decades before the British Army (Paprone, 2001). Informal publications and decentralized service regulations were replaced with formal doctrine approved, published and regularly updated by the Department of the Army. In 2011, official U.S. Army doctrine covered tens of thousands of pages in over 800 field manuals and documents (TRADOC, 2011).[26]

Over decades, within this relatively long tradition of written doctrine numerous terms sought to identify and define superior control and subordinate autonomy. "Mission command" appeared for the first time in official U.S. Army doctrine in 2003, elevated immediately to be "the command and control concept for the Army" (U.S. Department of the Army, 2003, p. vii). Closely mirroring the British Army's definition, "The fundamental basis of mission command is creating trust and mutual understanding between superiors and subordinates" (U.S. Department of the Army, 2003, pp. 1-18) and emphasized four elements: a clear commander's intent, the dependence on subordinates' initiative, mission-based orders, and appropriate resource allocation (U.S. Department of the Army, 2003). Field Manual (FM) 6-0 further defined mission command as:

> "*Mission command* is the conduct of military operations through decentralized execution based on mission orders for effective mission accomplishment. Successful mission command results from subordinate leaders at all echelons exercising disciplined initiative within the commander's intent to accomplish missions" (U.S. Department of the Army, 2003, pp. 1-17).

Since its adoption in 2003, mission command would be elevated in later publications to "the Army's preferred method for command" (U.S. Department of the Army, 2005, pp. 3-4; 2008,

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[26] The formal nature of the U.S. Army's approach to doctrine was further established in 1973 following the restructuring and rethinking post-Vietnam with the creation of the United States Training and Doctrine Command (TRADOC). TRADOC further formalized the process of updating doctrine; for example FM 101-5, dealing with command and staff autonomy and authority, was updated and republished seven times between 1940 and 1997 (Paprone, 2001).

pp. 3-1). Later doctrine "mandated" subordinates be granted autonomy to "adapt and succeed despite the chaos of combat" (U.S. Department of the Army, 2005, pp. 3-8), and that a doctrine of mission command "restrains higher level commanders from micromanaging subordinates" (U.S. Department of the Army, 2008, pp. 3-6). 2008's FM 3-0, *Operations*, the Army's capstone doctrinal document is dominated by the term "mission command" (used 67 times); the replaced 2001 version of FM 3-0 did not mention the term once (U.S. Department of the Army, 2001b).[27]

3.2.5   Summary

Through defeat, success and organizational changes, militaries adapt their doctrines, adjusting the appropriate level of superior control and subordinate autonomy. Through the period of the case (2003-2008), both the U.S. and British armies espoused a nearly identical doctrine—mission command—a doctrine that guided superior control and subordinate autonomy. Yet doctrine's worth is relative to how well these values are inculcated. First the British Army adopted a doctrine based on the Prussian *Auftragstaktik*, that recommended subordinates be granted broad autonomy.   Since the late 1980s, at the inception of the British Army's move to formalized, written doctrine, mission command clarified superior control and subordinate autonomy.   The U.S. Army, with a relatively long tradition of formalized, written doctrine, only adopted mission command in 2003. This relatively late adoption would mean that the British Army would be more likely to understand and follow mission command than the U.S. Army. One would expect in organizations where mission command is doctrine to resist the temptation to tightly control subordinates. Yet what occurs when technology increases the ability for superiors to control subordinates?

3.3   The influence of technology on the doctrine of autonomy

Organizational culture is seen to be resistant to change, but defeat is not the only method (Schein, 2009, p. 28). Change can occur gradually and internally, with culture evolving as actors share information (Dawkins, 2006; Distin, 2005) or as a result of "structuration" as individuals change behaviour and communicate this change to others (Giddens, 1984). Yet, powerful external forces may instigate a moment of change in the culture of an organization (Schein, 2009). By first introducing how technology can initiate culture change broadly and

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[27] The 2001 version of FM 3-0 replaced FM 100-5 "Operations" published in June 1993. FM 100-5 also did not mention "mission command" (U.S. Department of the Army, 1993).

then analyzing how technology was thought to influence autonomy specifically, this section captures such a moment of change. In both armies, as technology altered superior-subordinate relationships, new doctrine developed, manifested in the U.S.'s Network Centric Warfare (NCW) and the U.K.'s Network Enabled Capability (NEC).

3.3.1 Cultural change and technology

As seen in the development of mission command, change to organizational culture may begin with a disruption (e.g. defeat at Jena or Dunkirk) that threatens an organization's continued importance or existence (Barnard, 1938; Giddens, 1984; Giddens & Pierson, 1998; Schein, 2009). Technology adoption, especially technology that challenges established relationships has also been seen as a potent force of cultural change (R. J. House, 2004; Schein, 2009, p. 109).[28] Military organizations, thought conservative by nature, are thought resistant to adopting technologies that alter superior-subordinate relationships (Farrell, 2008, p. 783; P. Feaver & Kohn, 2001). Yet access to resources, and not simply a cultural predisposition, may determine the overall disruptive effect of technology adoption. As Figure 3.1 shows, in the past 20 years, the U.S. spent vastly more than the U.K. on its military, both in raw dollars (from 10 to 15 times more) and as a percentage of GDP.[29]

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[28] Many have attempted to measure the speed and pace of technology adoption in different cultures. Based on anthropological change, this concept is known as the theory of the diffusion of innovations. Many of its principles, especially Ryan and Gross's (1943) identification of a process were useful in the analysis. For more on diffusion of innovations theory see (Rogers, 2003).

[29] For example, in 2010, the U.S. spent approximately $700,000,000,000 on military expenditure. The U.K. spent one twelfth this amount, or approximately $57,000,000,000 (Stockholm International Peace Research Institute, 2011).
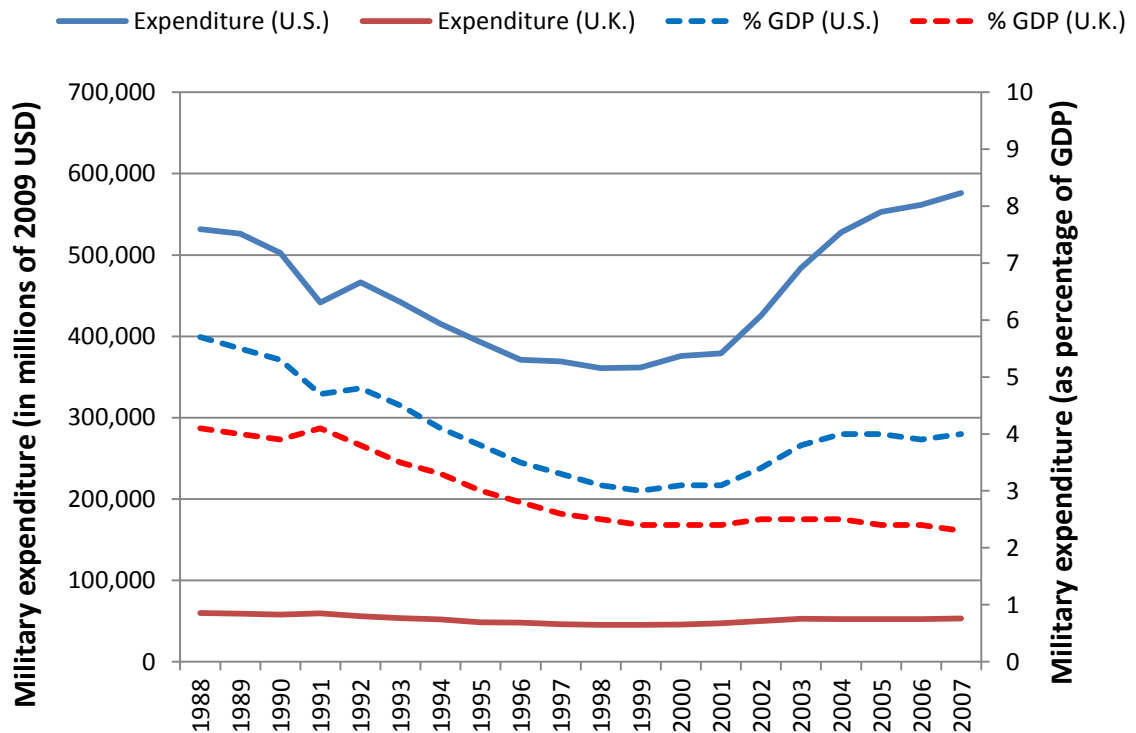
Figure 3.1 U.S. and U.K. military expenditures (1988-2008)[30]

This difference of expenditure had an effect on the amount of technology that each army employed, especially information technology. The relatively resource poor British Army was forced to develop principles of local command and autonomy; the resource rich U.S. Army, able to communicate with widely dispersed elements, developed a more centralized control (Nagl, 2005). Consistent with Nagl's findings, a previous study comparing senior officers of the U.S. and British armies in Kosovo, U.S. Army officers described high levels of technology adoption with constant communication between themselves and their U.S. Army superiors. Conversely, the British Army officers described low access to technology and intermittent and irregular communication with their British Army superiors (Sowers, 2005).

Like most organizations in the 1990s, the U.S. and British armies felt the "virtual tidal wave of change" (Alberts, 1996, p. 1) of the information age, "a communication environment that is very different from before" (E. A. Cohen, 2004, p. 404; E. Cohen, 1996). Technology was recognized as having a transformative effect "unlike any seen since the Napoleonic Age" (Cebrowski & Garstka, 1998), with the potential promise to lift the fog of war (Owens & Offley, 2000, p. 14) and liberate "the initiative of junior officers and non-commissioned officers to perform independently and synergistically"(Macgregor, 1997, p. 228). Adopting these technologies would be more than just adding a new piece of equipment but would

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[30] *Source (Stockholm International Peace Research Institute, 2011).*

require "a fundamental change in culture...we need to do more than redraw an organization chart; we also need to change what is valued and the way individuals think and behave" (Alberts & Hayes, 2003, pp. 180-181). Each nation encapsulated these changes under a broad moniker—for the U.S., Network Centric Warfare (NCW) and for the U.K., Network Enabled Capability (NEC).

3.3.2   U.S. Army's Network-Centric Warfare (NCW)

The term NCW was first proposed by scholars in the late 1990s (Cebrowski & Garstka, 1998). While no single, clear definition emerged, NCW referred collectively as the military's response to the Information Age (U.S. Department of Defense, 2001a). As the U.S. shifted to face the asymmetric threats in the post 9/11 world, NCW was dubbed "no less than the embodiment of DoD (Department of Defense) transformation" (2001a, pp. "12-11"). By 2006, "achieving net-centricity" became one of ten objectives of the U.S. military (U.S. Department of Defense, 2006b, p. 59).

While NCW promised to "change organizational roles and responsibilities" (2001a, pp. 5-1) and to "revolutionize military organizations and the approach to command and control" (Alberts, 2002, p. 40), the precise effect on superior-subordinate relationships was admittedly undetermined (Alberts, 2002, p. 9; Schrage, 2003, p. 8).   On the surface, NCW seemed supportive of the doctrine of mission command. NCW required a clear and consistent understating of command intent, high quality information and shared situational awareness, competence at all levels of the force, and trust between subordinates, superiors and peers (Alberts & Hayes, 2003, p. 27). U.S. Army doctrine also predicted that NCW would enhance mission command:

> "The information that [digital information systems] make available allows commanders to know what their subordinates are doing faster and in more detail than previously. Commanders can use this information to revisualize the overall operation and take advantage of opportunities that results from their subordinates' actions, in keeping with mission command" (U.S. Department of the Army, 2003, pp. 1-20).

The belief that NCW would enhance mission command was far from universal (Blaker, 2007, p. 48). Scholars predicted that superiors, fearing the loss of control, would restrict information, producing "a revolution in the recentralization of command" (Gombert, Pung, O'Brien, & Peterson, 2004, p. 23; Schrage, 2003, p. 8). Later critics of NCW used evidence from the Iraq and Afghanistan wars to conclude that NCW was actually slowing combat

operations warning that "[m]ilitary forces must abandon the dangerous and seductive illusion that technology can solve the problem" (McMaster, 2008, p. 26).

3.3.3   British Army's Network Enabled Capability (NEC)

The relatively resource poor U.K. would watch and follow, where possible, the U.S. embrace of technology (U.K. Parliament Defence Committee, 2003, pp. Para 91, p. 32.). The U.K. MoD dubbed this transformation Network Enabled Capability (NEC), defined as "[l]inking sensors, decision-makers and weapon systems so that information can be translated into synchronized and overwhelmingly rapid military effect" (U.K. Ministry of Defence, 2005, p. 196). NEC was thought to be heavily influenced by NCW, yet the significant difference between the terms "centric" and "enabled" was seen as a result of resource constraints (Uttley, 2002) and a "cultural resistance" to any technology that infringed upon mission command (Farrell, 2008, p. 788; U.K. Ministry of Defence, 2004a, p. 4).

Like in the U.S., U.K. military scholars split on how technology would change British Army culture. Some believed NEC would centralize command (Jackson, 2005, p. 3). Others postulated it could create maximum decentralization, with forces being able to rapidly respond to changing situations (Reid & Giffin, 2003). This uncertainty produced a "cautious welcome of NEC in Britain…in marked contrast to the U.S. enthusiasm for NCW" (Farrell, 2008, p. 787). Despite this lukewarm reception in practice, NEC was officially said to be "at the heart" of the MoD's post 9/11 strategy (U.K. Secretary of State for Defence, 2004, p. 2.1) and was formally adopted into British Army doctrine when included in 2005's *Land Operations* (U.K. Department of the Army, 2005, p. 35).

The MoD saw that "NEC should be viewed as an enabler of Mission Command" yet warned that "some would see [NEC], enabling the commander to over-control" (U.K. Ministry of Defence, 2005, p. 5) The qualified acceptance of NEC can be seen reflected in British doctrine:

> "We envisage Mission Command relevant to the Information Age…although the U.K. believes that our command philosophy is robust, we perceive an urgent need-and the means-to change control mechanisms. Better communication leads to the temptation to over-control…so the U.K. doctrine of Mission Command needs to endure" (U.K. Ministry of Defence, 2005, p. 3).

> "[NEC has] particular utility, conferring decisive advantage, through the timely provision and exploitation of information and intelligence, allowing effective decision-making and the agile synchronization of activity. However, near-real time information flows, in ever increasing volumes and to wider audiences, offer both risk and opportunity. Effective information

management is required to ensure that an abundance of data does not inhibit or overload the commander's decision-making capacity. Moreover, and notwithstanding advances in information technology, intuition, expertise and intellect, in shaping judgements and assessing perceptions, continue to have an essential role in successful information exploitation" (U.K. Ministry of Defence, 2008, pp. 4-11).

Summary

The first decade of the twenty-first century witnessed two armies, each with a strong organizational culture, adapting to information technology. While the technology was adopted, there was much confusion on how these technologies would influence superior control and subordinate autonomy. While the doctrine of both armies stated that these technologies would enhance mission command, and therefore subordinate autonomy, scholars and military officers warned that these tools could be used to centralize control.

The preceding discussion focused on one aspect of an organization's culture—the written rules, or values. The next section employs the empirical data from the case to capture the observable (the cultural artifacts of autonomy and technology) and the unobservable (the basic underlying assumptions as to whether technology was used appropriately).

3.4 Empirical findings

The values of both the U.S. and British armies are expressed in doctrine, highlighting an inherent conflict between superior control and subordinate autonomy. As the development of *Auftragstaktik* and mission command demonstrated, doctrine may change as a result of defeat or disconfirmation of a stated value. As the discussion of NCW and NEC showed, doctrine may also change as a result of new technologies. Doctrine is not written in stone; nor is doctrine necessarily followed.

From this foundation, in the interviews I sought to capture the difference between doctrine and observed practice, the artifacts of an organizations' culture. From these observations and recollections I sought to determine whether these artifacts were perceived as appropriate or not. Those thought appropriate could be assumed to be a basic underlying assumption. These baseline observations, and assessment of appropriateness, established a foundation of comparison. The assessment of artifacts and basic underlying assumptions explain what these officers perceived as both the observed and appropriate amount of superior control and subordinate autonomy.

3.4.1 Artifacts of autonomy

As outlined in Table 3.1, to assess artifacts of autonomy, I employed semi-structured interviews to understand relationships between superiors and subordinates. I asked a series of questions first to gauge interactions with superiors such as "How did you spend a typical day in relation to communicating with superiors and subordinates?" From these answers I could begin to assess the degree of subordinate autonomy and superior control. I then followed up with questions concerning artifacts of autonomy such as "How would you assess the level of mission command?" or "How would you assess the degree of autonomy you were granted?"

British officers

A clear majority (23 of 31) of British officers stated that they were granted broad autonomy. Numerous officers expressed being told to "crack on" or to simply "get on with it" (U.K.-1; U.K.-5; U.K.-6; U.K.-20):

> "The commander [on the ground] let me get on with it. And he told me what he wanted, he told me his intent, and then he let me get on with it. [He was] exercising mission command to the full and let me crack on" (U.K.-5).

> "[There] tended to be a lot more freedom…to do pretty much what we wanted to do…We weren't really given any limits or constraints for what we were allowed to do and not allowed to do" (U.K.-16).

For British Army officers, the term "mission command" was commonly understood and often referred to as a noun:

> "The U.K. does espouse mission command. In my judgement I think we do actually exercise it, and in my experience we exercise it very well" (U.K.-17).

> "[Mission command] was spot on, as it should be" (U.K.-20).

> "Well actually we got quite a fair bit of mission command. I was given a task and we were told to get on with it. Mission command was definitely used" (U.K.-28).

> "Mission command is an absolute tenet of the British Army. We all practice and preach it the best we can" (U.K.-29).

U.K. officers also reported exercising mission command with their subordinates:

> "Had I said [to my subordinates] go and do this in the exact way, what would I achieve by doing this? I'd spend way far too much time than what it was worth" (U.K.-1).

> "To my subordinates, I think I gave them mission command, of course we all do don't we?" (U.K.-27).

A minority (8 of 31) of British officers reported that mission command was not practiced:

> "We were just very used to…off you go, you just do your thing, come back when it's done. [The commander] sort of micromanaged every last detail to what I believe was a detriment to the unit. We weren't allowed to make decisions" (U.K.-3).

> "The tightness of control was against mission command of understand the intent then crack on…If you fail, that is when higher gets involved. But we hadn't failed at that point" (U.K.-6).

> "The reason why mission command didn't work out there was just the desire to do it exactly the way they wanted to as opposed to allowing someone to have the flexibility to get on with the task" (U.K.-16).

> "There was at times little application of the concept of mission command…Higher formations were too frequently telling me how to do something, but not what they wanted to do" (U.K.-30).

Scholars have noted a "generalship of poverty" in British Army culture, where resource restrictions required subordinates to take initiative (Sheffield, 2010, pp. E-21). This lack of resources was noted as influencing mission command positively:

> "Communications weren't particularly reliable. So you ended up having to give a clear mission or task" (U.K.-12).

> "Mission command was very good…the fact that the company groups were dispersed, mission command had to work" (U.K.-19).

> "We were given the tasks and the resources that we needed for the definition of mission command and then largely left completely alone. It was almost forced by the station by the type of separation…we really were left to get on with it" (U.K.-17).

> "Because I was nowhere near [my superior], I was just left to get on with things" (U.K.-20).

U.S. officers

Few U.S. officers used the term "mission command" but many described a culture of autonomy consistent with the stated doctrine of mission command:

> "We had a lot of autonomy in terms of how we would execute our missions…[superiors] allowed us to do what we do" (U.S.-18).

> "The command climate was what the Brits called mission command. What do we call it? I guess we don't have a word for it" (U.S.-01).

> "I was very autonomous…we pretty much ran our own roost. We pretty much answered just to our own bosses…I just had to fit into my commander's intent, and he was happy, and that was it" (U.S.-05).

> "[My] commander was very commander-centric…[he] would never second-guess what I was doing" (U.S.-03).

> "To be completely honest with you…there was a hell of a lot of mission command" (U.S.-02).

In a greater proportion than British officers, U.S. officers described exacting superior control, using the term "micromanaged" (U.S.-12; U.S.-14) to describe their relationship with their superior:

> "[The commander] was very involved with details. He would get involved with very much the mission specifics, how the operation would be conducted" (U.S.-07).

> "We were directed instead of empowered…[I would want superiors to] tell me what my assets are and my key taskings…[Instead I would get] 'No, no, no, this is what you need to do'" (U.S.-20).

Like British officers, U.S. officers saw separation, either through physical distance or lack of communication, between them and their superiors produced more autonomy:

> "[Physical separation] gave me a little bit more freedom of manoeuvre without anybody to direct me, check on me. I think the company that was collocated with the battalion headquarters had a harder time than I did. So [I had] a lot more freedom of manoeuvre to do what I felt I needed to do inside of my sector" (U.S.-03).

> "We remained pretty much autonomous because I was so far out that we did do our own thing" (U.S.-05).

> "It was good having the separation…a big plus that they didn't come and micromanage" (U.S.-07).

> "[Being collocated with command] hindered my autonomy somewhat because [the commander] was constantly up in the personal space of the company" (U.S.-16).

3.4.2   Basic underlying assumptions of autonomy

To assess basic underlying assumptions required assessing whether the artifacts of superior-subordinate relationships described above were seen as appropriate or "natural, rightful, expected and legitimate" (March & Olsen, 2004, p. 3). To that end, I asked a series of questions concerning the appropriateness of the level of control such as "Can you describe an example of what you would consider inappropriate monitoring by superiors?"

British Officers

Those that identified artifacts that ran counter to mission command, nevertheless understood the tenets. For the British, mission command was understood as a value but recognized that it was not always adhered to:

> "From a British perspective I think we talk a good talk. I think we aspire to have mission command, but there are very few examples that I can recall that the personalities in my experience have shown good mission command. And I include myself in that, as a person who hasn't shown good mission command because I've got this desire to get too stuck in the weeds and things, and try and play the tune my own way" (U.K.-16).

> "Oh, I think there is an understanding of mission command but I think there's a reluctance to practice it…and sometimes that manifests itself with second-guessing what people are doing. I've certainly experienced that" (U.K.-7).

To assess underlying assumptions, I asked questions for examples of inappropriate monitoring. The majority of British officers did not see inappropriate monitoring of their activities:

> "No…Not in my role. They all pretty much left me to my own devices" (U.K.-4).

> "No. It was quite a well-oiled sort of set of procedures for the control mechanisms for the operation, and for observation" (U.K.-14).

> "No. I was left to my own devices. Just get on with it" (U.K.-20).

Those officers with multiple deployments tended to observe increased and inappropriate use of technology, conflicting with their understanding of mission command:

> "If you are using [technology to monitor subordinates], I think that is wrong. It goes against our tenets of mission command" (U.K.-1).

> "[Less technology] would have given people like myself a bit more motivation to come up with clear direction…as opposed to the ability to pick up the phone and use an e-mail to change the direction as and when. I think we—at probably all levels including myself, clear direction wasn't given as to what we required of our subordinates…because you could give guidance at any time...when you manipulate through e-mail and telephone phone calls, then you are not really doing mission command" (U.K.-16).

U.S. Officers

Where the broad subordinate autonomy dictated by mission command seemed expected in the British Army, even those that used the term mission command often described a system of command very different than the doctrinal definition:

> "So he kind of let me do my thing and it was pretty nice…He was very mission orders type, and he was a focused guy. And he would send me exact instructions every day" (U.S.-06).

And while a handful of U.S. officers stated they did not see inappropriate monitoring (U.S.-01; U.S.-15), many U.S. officers described the type of monitoring deemed inappropriate by British officers as an accepted, appropriate part of the U.S. Army's culture of command:

> "My philosophy, what I believe it is, is simply we've grown up in an environment where you're supposed to influence the fight...So it's the American mentality of hard charging. I've got to make my lasting contribution. It's not a negative aspect or anything, it just is" (U.S.-12).

> "I don't know if it was inappropriate...sometimes the colonel would make his directives back down to the battalions to do this or do that...I don't know if I'd consider that inappropriate" (U.S.-16).

> "The [monitoring] was of a helpful nature. If and when [superiors] monitored it was to add to our awareness. I didn't see it undermining my authority" (U.S.-20).

3.4.3   Summary

By assessing artifacts and basic underlying assumptions can one predict if an organization's culture predisposes someone to nanomanage? The evidence from the artifacts is mixed. The British officers shared an assumption that mission command equated to autonomy. Yet even having a well-shared understanding of what was appropriate autonomy did not guarantee it was practiced—only that it was inappropriate when it was not. The British Army, with mission command firmly established in doctrine, assumed subordinates should be delegated broad autonomy.

Conversely, the relatively late adoption of the doctrine of mission command in the U.S. Army was reflected in the U.S. responses. U.S. Army officers rarely mentioned the term "mission command" and seemed to not have as clearly defined perspective on what was an appropriate superior-subordinate relationship. So while the U.S. surveyed population operated in an organizational culture where mission command was a stated and emphasized value, enshrined in doctrine, granting subordinates broad autonomy was not inculcated as a basic underlying assumption.

3.5   Conclusion

This chapter assessed whether certain organizational cultures may be more hard wired to nanomanage and exert more superior control. It began by defining organizational culture and presenting an established typology useful to analyzing organizational culture. It then demonstrated the similarities between the U.S. and British armies' current doctrine regarding

autonomy. Yet the development of this shared doctrine of autonomy differed; while the British Army's use of doctrine is a recent development of the past 20 years, the British concept of mission command was well established prior to the period of study. Conversely, for the U.S., with a long tradition of written doctrine, mission command was only recently (2003) enshrined in doctrine.

To assess how autonomy was expressed within these two organizations, artifacts and basic underlying assumptions were presented. The evidence here is mixed. While British officers were generally more familiar with mission command and accepted this as a basic underlying assumption of what was expected of autonomy in Iraq, they did not report that mission command was always practiced. U.S. officers rarely used the term mission command and seemed to lack a common understanding of what was an appropriate superior-subordinate relationship or expectation of autonomy.

Through interpreting the words of the surveyed officers, I assessed why culture may influence superior-subordinate relationships. It is evident in the discussion of NCW and NEC that both organizations grappled with the correct use of technologies that allowed increasing superior control even as their doctrine of mission command dictated the opposite—that subordinates should be granted autonomy. Both armies' doctrine largely saw these technologies as supporting mission command. Yet, the initial analysis of artifacts and basic underlying assumptions of both armies' officers revealed that these technologies were used in ways contrary to subordinate autonomy. From this baseline, later chapters will explore the disruptive effect of technology in more detail.

This brings up a question relevant to many professions, institutions and organizations—what is the value of doctrine? Military success usually reinforces doctrine while defeat discredits it. Yet the most recent transition of both armies towards a formal doctrine of mission command was not motivated by a clear defeat in the 1980s and 90s. In this case, the findings here suggest that doctrinal changes may have limited impact when not sourced to a clear past failure. In this example, doctrine is worth only the degree to which it is imbedded in the organization's culture. Words alone do not produce a basic underlying assumption, and a basic underlying assumption does not necessarily depend on words. As cultural studies seek to understand behaviour, it is clear that the existence of a published set of values does not compel or restrict behaviour.

Based on the evidence, it would be too much to say that an organization's culture should be considered a cause of nanomanagement. Yet in the evolving doctrine of the British and U.S. armies, one can see how culture conditions whether an act, such as nanomanagement, is considered appropriate or not. While organizational culture was presented as one of five factors, by presenting it first, this thesis sought to lay a foundation for comparing two organizations. Each army shared a broad understanding of autonomy, expressed in written doctrine. However, the officers differed in their inherent cultural tendencies to see nanomanagement normatively, as either good or bad. These cultural predispositions will condition the remaining factors; therefore the presentation of organizational culture first should be seen as opening the analysis and informing the remaining discussion.

Doctrine often cleanly states prosaic and aspirational values. The execution of those values is often, as in this case, much messier. This chapter saw two organizations aspiring towards mission command and granting subordinates wide autonomy. The next chapter examines another one of these aspirational words—trust—a word that one might expect, in its absence, would cause nanomanagement. To examine trust, I consider professions. From athletes to doctors, plumbers to engineers, one finds a diverse set of work and workers that deem themselves 'professions' or 'professional'. Yet few organizations invest the time and resources in selecting, training and vetting their members—the *ex ante* controls that truly separate the professionals from the non-professionals. The next chapter assesses whether professional organizations, largely built on superiors able to trust highly qualified subordinates, should be more resistant to nanomanagement.

CHAPTER 4 *Ex ante* control

The previous chapter introduced culture as the first overarching factor that could determine a cause of nanomanagement. Establishing that a factor such as an organization's traditions and doctrine could be a cause of nanomanagement is essential to understanding this chapter's factor—the *ex ante* controls exhibited by professions.

Professions traditionally invest resources in producing trusted subordinates. New members may not simply be hired; aspiring professionals must go through rigorous screening, selection and training before being granted entry into a profession (A. Abbott, 1981; Carr-Saunders & Wilson, 1933; Greenwood, 1957; Lynn, 1965b). They must learn a field of abstract knowledge and be tested in their ability to apply this knowledge to professional standards, without supervision. Professions require that entrants prove that they can be trusted to be a military officer, a professor, a doctor or an attorney. This training is a cost borne by both individuals (the professional) and organizations (the profession). Professions ensure only the few, the trained, practice their craft. These *ex ante* controls distinguish professions from other organizations; instead of hiring a person off the street to immediately lead troops in combat, or to perform a surgery, or argue a case, professions exact a high cost before their professionals are trusted.

To nanomanage a subordinate is not to trust a subordinate. And to not trust a subordinate is not to be a profession. Then could professions, that value trust, nanomanage? In Chapter 4, I will argue whether a more professional, more trusting organization is more resistant to nanomanagement. One would think so. Why waste so many resources, and so much time in training, selecting and screening a worker if subordinates are just going to be tightly controlled upon entry? The professional is trained to adhere to a code—standards dictated by medicine, law, the clergy or, in this study's case, the military. These costly measures seek to guarantee professional behaviour, all prior to granting membership in a profession. In return for surviving the crucible of a profession's selection and training, the professional is granted trust by his superiors. This trust earned by joining a profession is not a binary switch; instead it is more like a dimmer switch. While entry into the profession may establish an expectation of trust, individual characteristics such as the confidence of the superior and the competence of the subordinate, the assigned task, the perceived risk, the importance of the outcome may all condition exactly how much trust, and by extension autonomy, a subordinate is granted (Mayer, Davis, & Schoorman, 1995).

Chapter 4 examines the degree of trust observed in mid-level officers in Iraq— members of a profession by their rank, time of service and previous training and therefore with some expectation of trust. However, the adoption of technology that allows superiors to nanomanage subordinates can destroy the trust central to professions. Instead of expending resources in selecting, screening and training professionals, technology fundamentally changes the cost calculus of trusting, where superior *ex post* control becomes more cost effective. This case provides an excellent lens to examine two professions that, by their very nature, should resist nanomanagement. In answering "why nanomanagement?" could the answer simply be the more professional, the less nanomanagement? The less professional, the more nanomanagement? Does nanomanagement occur regardless of professional, *ex ante* training? And if so, can subordinates still be considered professional if they are nanomanaged and no longer trusted?

To address these questions, Section 4.1 defines professions and examines the army as a profession. Section 4.2 discusses *ex ante* controls, why one would expect to see trust both of and within professions, and includes an analysis of the U.S. and British armies' doctrine of trust. Section 4.3 will then present empirical findings. Section 4.4 will conclude, assessing whether nanomanagement portends the death of the military professional.

4.1   Professions and trust

O'Neill states that "every profession and every institution needs trust" (2002, pp. 3-4). Yet what is a profession and why does it need trust? This section defines professions, discusses how technology may influence professions and why the U.S. and British armies should be considered one of these unique organizations.

4.1.1   Professions, technology and change

The terms 'profession' and 'professional' have adopted a normative quality. From street builders, to street sweepers, to street walkers, nearly every line of work claims some degree of 'professionalism'. This study focuses on the unique organizations that Weber saw as separate and distinct from other forms of work, specifically those that required attendance at "special schools" where an abstract area of knowledge is "given rational and systematic treatment" (1968, pp. 784-785). Much of the twentieth century scholarship on professions identified the static characteristics that separated professions from non-professions (Carr-

Saunders & Wilson, 1933), noted the processes by which a profession is developed over time (Lasswell & McDougal, 1943), and discussed how professions develop and defend a monopoly over a certain type of abstract knowledge (A. D. Abbott, 1988; M. S. Larson, 1977).

This thesis understands a profession to be: *an exclusive group that is trusted and autonomous in its application of abstract knowledge, gained through specialized training.* This definition emphasizes five characteristics commonly referred to in professional literature. *Exclusivity* implies legitimacy and a clear distinction between members of the profession and the rest of society (Carr-Saunders & Wilson, 1933; Goode, 1957; Greenwood, 1957). Exclusivity refers to an internal labour market—qualities of promotion, on-the-job training and difficulties in leaving or entering the organization are characteristics of a profession (Doeringer & Piore, 1971). *Autonomy* is seen as one of the "essential attributes of the professional role" (Barber, 1965, p. 25) where "professionals differ from other workers in the degree of control that they exercise" (Freidson, 1984, p. 11). *Being trusted*, both externally and internally, is a requirement of professions (Caplow, 1954; Freidson, 1973, 1983; Wilensky, 1964). The *application of abstract knowledge* implies that professions can best be understood in the work they perform (A. D. Abbott, 1988; Carr-Saunders & Wilson, 1933; Mayer, et al., 1995, p. 717). *Specialized training* refers to the requirement of the attendance and graduation from educational courses specific to the profession (Weber, 1968) that establish appropriate professional behaviour (March & Olsen, 2004). This prolonged training "enables [professionals] to render a specialized service to the community" (Carr-Saunders & Wilson, 1933, p. 284).

Defining a profession is not to suggest that professions, once established, are immutable objects. Instead, they are in a constant state of flux, as forces threaten to encroach on their monopoly over abstract knowledge. One of the most destructive forces that professions face is new technology, a force "opening and closing areas of work for professions" (A. D. Abbott, 1988, p. 149). The work of railroad dispatchers, telegraph operators, and others once thought as requiring specialized training and granted autonomy can be automated, protocolized and eventually eliminated by a technological change (O'Neill, 2002, p. 50).

Technology can also destroy professions by subsuming autonomy (Farrell, 2008). Information technologies that automate tasks that once required judgement and application of abstract knowledge create the central "problem of professions" (Lynn, 1965a, p. xi). Further, technology promulgates rules and regulations that "define professional responsibilities with ever-greater precision"; each rule that limits a professional's autonomy

may diminish their trusted judgement (O'Neill, 2002, p. 7). This quantification of effort, more fully developed in Chapter 7, can be seen as an encroachment on professional autonomy and judgement (A. D. Abbott, 1988, p. 149). As O'Neill stated, "Plants don't flourish when we pull them up too often to check how their roots are growing…professional life too may not flourish if we constantly uproot it to demonstrate that everything is transparent and trustworthy" (2002, p. 19).

4.1.2   The army as profession

Having defined a profession and discussed how technological change threatens professions this thesis turns to "the most fascinatingly rigid of professions" (A. D. Abbott, 1988, p. 130)—the military. The military has not always been considered a profession, or the army officer a professional. In early twentieth century surveys of professions, the military was often excluded from being listed as a profession. In Carr-Saunders and Wilson's (1933) survey of professions in Britain, they examined 26 professions including dentists, mine managers and masseurs; yet they specifically excluded the army. They noted the army's omission because "the service which soldiers are trained to render is one which it is hoped they will never be called upon to perform" (Carr-Saunders & Wilson, 1933, p. 3).[31]

Following World War II and the establishment of permanent standing armies in both Britain and America, two American scholars reinvigorated the concept of the military as a profession. Huntington began *The Soldier and the State* with the clear statement, "The modern officer corps is a professional body and the modern military officer a professional man" (1957, p. 7). He saw the military fitting this study's definition of professions, namely an exclusive group, with expertise in "the management of violence" (Lasswell & McDougal, 1943, p. 208). Likewise, Janowitz saw the military fitting the definition of a profession whose individual professional "as a result of prolonged training, acquires a skill which enables him to render specialize service" (1960, p. 5).

Both Huntington and Janowitz saw the military profession as susceptible to change, facing the same external and internal pressures as other professions.[32] In the decades following the

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[31] When Carr-Saunders and Wilson omitted the army, the armies of both Britain and America were in-between wars, small in number and garrisoned for peace; this temporal quality contributed to their exclusion.

[32] Huntington (1965) saw that post World War II, a technological revolution began that required a related organizational revolution, where deterrence required the maintenance of standing armies and a professionalized officer corps to command them. Following Weber, Huntington noted that professionals operated within a large organization, "the officer corps is not only a professional body; it

initial exclusion of the military, late twentieth century studies of professions almost invariably included the military (A. D. Abbott, 1988; Freidson, 1973, 1983, 1984; Lynn, 1965b; James Wilson, 2000) and a growing body of research examined the U.S. Army as a profession (Matthews, 2002; D. Snider, 2005; D. M. Snider, et al., 1999).

Returning to this study's definition, officers of both armies interviewed for this thesis should be understood as members of a profession. In terms of exclusivity, both armies have set selection and screening criteria and rigid promotion schedules for their officers. One cannot simply decide to be an army officer and be one the following day.[33] In terms of the defence of autonomy over abstract knowledge, both the U.S. and British armies hold a near monopoly on the use of force in overseas land operations. Yet both organizations have also needed to defend their autonomy against new threats and new technologies (D. M. Snider, et al., 2009; Van Creveld, 1989), most recently in the face of the ever-increasing use of private military contractors and other governmental agencies to manage violence (Avant, 2005; Uttley, 2005). In terms of specialized training, the officers of both armies receive lengthy training in order to receive their commission and officially join the profession. Finally, in terms of the application of abstract knowledge, both the U.S. and British governments have entrusted their armies with the 'management of violence' during the Iraq War. This trust, both from external bodies and within the profession is vital.

4.2   The importance of trust to professions

This section argues that trust—both of and within a profession—is vital to understanding how professions are controlled and what defines a professional. After discussing this external and internal trust, this section will explore how trust is perceived in both the U.S. and British armies' doctrine.

4.2.1   External trust—the importance of trust *of* the profession

In interorganizational control, the autonomy granted an organization is dependent on a variety of factors. More important tasks receive more oversight (D. E. Lewis, 2003; Moe,

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is also a bureaucratic hierarchy" (1965, p. 133). Janowitz (1960) noted that organizational change was also shifting the traditional lines of authority endemic to traditional, hierarchical militaries.

[33] While in the nineteenth century, officers that could financially raise regiments were often granted commissions, this practice was abandoned as both armies adopted formalized training where an individual could only become an officer of senior rank by first receiving specialized training and then advancing through the ranks. For a history of U.S. officer accession see (Coumbe, 2010).

1995). Cultural norms can determine what is and is not an appropriate level of granted autonomy (March & Olsen, 2004). Differences in the system of government may also determine how much autonomy an organization is granted, with wide variance between the U.S. system (Epstein & O'Halloran, 1999; Moe, 1995) and European parliamentary structures (Van Thiel, 2004; Yesilkagit & Christensen, 2010). The autonomy granted and defended, *sui generis*, by a profession requires some level of external trust by society "[s]ince the professional does profess, he asks that he be trusted" (Hughes, 1965b, p. 2).

The military, entrusted with lethal force to protect a system of government, depends on a high degree of external trust, a trust that may vary. Some have speculated that technology and a more legalistic environment (further discussed in Chapter 7) have increased the public's expectations to assume largely costless, bloodless wars; when the military inevitably fails these irrational expectations, trust is lost (Coker, 2007; McCartney, 2010). Others observed that the specific nature of the conflict, and whether the public supports it, as determining the level of external trust. In unpopular wars, society trusts a military less.[34] Further, scandals reduce support potentially damaging societies trust of a profession (McCartney, 2010).

The trust by elected bodies of the unelected military also varies between countries. U.S. Army doctrine sees the Army as a "long-trusted institution" (U.S. Department of the Army, 2005, pp. 1-1), yet also sees that trust varies "on how well [the U.S. Army] live up to Army values" (U.S. Department of the Army, 1999a, pp. 2-2). While most U.S. institutions have declined in external trust, according to U.S. Gallup poll, confidence in the military has gradually increased and it has continuously ranked number one or two of trusted U.S. institutions (Saad, 2009).[35]

While British Army doctrine also speaks of the importance of external trust, in the U.K., the military is not as trusted as in America. A 2008 IPSOS-Mori poll asked British citizens, "Which of these organizations do you trust the most?" In every institution, the British were more trusting than Americans. The one exception is that British citizens trusted their military

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[34] Where the Falklands War and operations in Northern Ireland received a majority of support, as of 2009 only 20% of the British public supported the war in Iraq (McCartney, 2010).

[35] In 1955, in a survey of U.S. professions, the military was ranked seventh in terms of trusted professions, behind doctors, lawyers and the ministry (Huntington, 1957). Numerous scholars have noted that while trust between U.S. society and its military has increased, the all volunteer force has produced a "gap" between civil and military societies, with military officers far more conservative than society as a whole (P. Feaver & Kohn, 2001).

significantly less than Americans. Figure 4.1 compares the U.S. Gallup poll with the U.K. IPSOS-Mori poll.
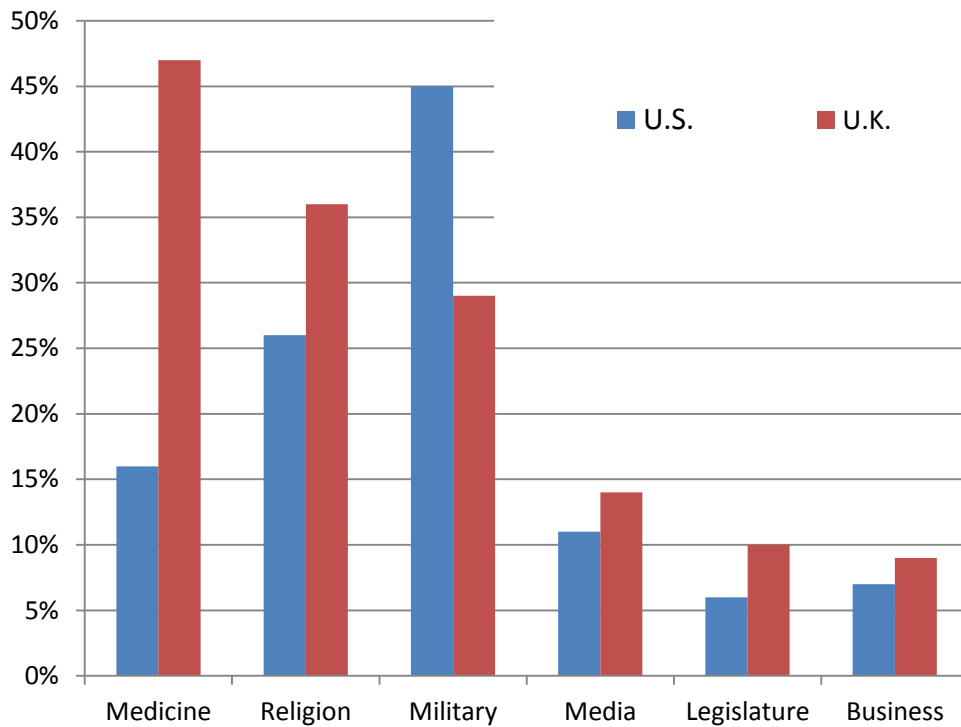
Figure 4.1 Relative trust in institutions (U.S. vs. U.K.) in 2008[36]

The difference in trust has been noted by British officers who see America's civil-military relations as a preferable model to their own (McCartney, 2010). Why do British citizens trust their military less? This declining trust has provoked a broad discussion in Britain. British Army doctrine speaks of a military covenant between the nation, the service and each individual soldier. If soldiers or the British Army do not meet the terms of the covenant, and perform unprofessionally, it is likely "to cause goodwill and trust to be withdrawn" (U.K. Ministry of Defence, 2010a, pp. 2-15). With the covenant broken, the trust necessary for a profession ceases to exist. One scholar captured the declining trust of the military in Britain:

> "The capacity of the military chain of command to control its professional space is weaker than it was in the past, as a result of the development of law, individual and societal demands, and the actions of service personnel themselves. This has left British military commanders as 'weakened gatekeepers', no longer capable of the sort of self-regulation that operated in the past; without recognizing change, they will no longer be able to uphold their side of the military covenant" (Forster, 2006, p. 1054).

The influence of the external environment on nanomanagement will be more fully explored in Chapter 7. However, this *intra*organizational study focuses far less on the question that fixates many civil-military studies—how much autonomy should be granted *to* the military.

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[36] *Source (IPSOS-Mori, 2008).*

Instead, this study focuses on a question comparatively ignored—the degree of autonomy granted *within* the military.

4.2.2 Internal trust—the importance of trust within a profession

Superiors, vested with power and authority, yet limited in specific resources (e.g. time, attention, specialization), entrust subordinates to perform delegated tasks. The superior, seeking compliant subordinates, can emplace subordinate controls prior to, or *ex ante*, the delegation. These *ex ante* controls (e.g. selection, schools and training) help guide a professional's activity (Mayer, et al., 1995, p. 719; Wittlin, 1965) and provide superiors confidence that the subordinate will perform the assigned task (Williamson, 1993).[37] Once selected and trained, the professional is granted discretionary autonomy to determine the manner of their work within a specific field of abstract knowledge (A. D. Abbott, 1988, p. 8) . This autonomy grants professions freedom and protection to "try new things, to adapt, and to be creative" (Radin, 2006, p. 238). By establishing selection and screening criteria, investing in schools that inculcate professional values and codes, and aligning the preferences of superiors with subordinates, *ex ante* controls dominate professional organizations.

For one word most distinguishes the superior-subordinate relationship between professional and non-professional work—trust (James Wilson, 2000). The more professional the subordinate, the more a superior should be able to trust them. Where the non-professional subordinate is highly supervised, the professional subordinate faces restrictive selection and intense education, but once hired, is trusted to their methods (James Wilson, 2000, p. 149).

Yet the most stringent *ex ante* controls are not the only tool available to the superior to guarantee subordinate behaviour. Assuming that subordinates will be "self-interest seeking with guile" (Williamson, 1985, p. 47) a superior must constantly assess the degree of trust emplaced in a subordinate. The superior, seeking compliance may then choose to emplace

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[37] While professions invest heavily in *ex ante* control, codifying their rules and regulations in doctrine, this should not be considered "deck stacking," where the standards and conduct of subordinates are determined prior to delegation and are manifested in written instructions and procedures (Epstein & O'Halloran, 1994; McCubbins, Noll, & Weingast, 1987, 1989; Potoski, 1999). Deck stacking is an *ex ante* form of control that external actors employ when collectively creating institutions and policies. Its main purpose is to ensure that future changes to superiors (through elections of policy preference changes) will be unable to affect bureaucratic decision making, defining elaborate procedures that are cumbersome to change (McCubbins, et al., 1987). Deck stacking is interorganizational control in environments where multiple external actors seek to modify a single actor's policy. As this thesis focuses on intraorganizational control, deck stacking is less applicable.

ex post controls, monitoring mechanisms to ensure subordinates are working and not shirking, the subject of Chapter 5 (Brehm & Gates, 1997). The balance between *ex ante* and *ex post* will depend on "the degree of trust" within the organization (Fukuyama, 1995, pp. 26-27).

The experience of both superior and subordinate also complicates the issue within a professional organization. As professional superiors almost exclusively are promoted from within, they have first-hand experience in the tasks they entrust their subordinates to do (Freidson, 1984). Likewise, when the task is outside the typical ability of the subordinate's experience, the superior's willingness to entrust subordinates diminishes. The variability of a subordinate's experience contributes to the superior's likelihood to trust (Sitkin & Pablo, 1992; Williamson, 1993).

Trusting internally is seen as a cost-effective method of control (Bromiley & Cummings, 1992; Dore, 1983; Dyer & Chu, 2003; Le Grand, 2003). The more trust, the less cost to superiors seeking to control subordinates (Fukuyama, 1995, p. 27). This cost calculus inherent to all trust, balances the desire to maintain subordinate accountability against the superior's cost to control subordinates (Deutsch, 1958; Johnson-George & Swap, 1982; Luhmann, Burns, & Poggi, 1979, p. 24; Mayer, et al., 1995). If constrained by time and resources, superiors may be left with no other option but to trust subordinates (Bromiley & Cummings, 1992). If the costs of monitoring an activity are high, the superior may be forced to either outsource this monitoring or depend more heavily on *ex ante* controls. Yet if the costs of monitoring decrease, the superior need not repose as much trust in the subordinate (Gambetta, 1988, p. 218). If resource constraints provide only one opportunity a week to communicate with a subordinate, the superior will need to trust that subordinate more. If technologies allow for daily communication, less trust is needed or offered. And by extension, if technologies allow for real-time communication, at the whim and discretion of the superior, even less trust may be needed.

External trust provides organizational level autonomy. Internal trust provides individual level autonomy. Trust, both internally and externally, is vital to professions; therefore it is not surprising that trust is mentioned often in military doctrine.

4.2.3   The doctrine of trust in the British and U.S. armies

Both the doctrines of the U.S. and British armies' see trust as one of the "cornerstones of leadership" (U.K. Department of the Army, 1995, pp. 0218-0220; U.S. Department of the Army, 2003, pp. 2-10), a "key attribute in the human dimension of combat leadership" (U.S. Department of the Army, 2001b, pp. 4-8), a "vital constituent of the maintenance of morale, and so ultimately, of victory" (U.K. Department of the Army, 1995, pp. 0218-0220) and a "prerequisite of command at all levels" (U.K. Department of the Army, 1995, pp. 0218-0220; U.K. Ministry of Defence, 2010a, pp. 6-14). The doctrine of these two armies includes four common characteristics of trust.

First, for these two armies, trust is needed for mission command to work. U.S. Army doctrine sees trust as "essential to successful mission command" (U.S. Department of the Army, 2003, pp. 2-10) and that "[m]ission command requires an environment of trust" (U.S. Department of the Army, 2008, pp. 3-6). Likewise British Army doctrine states that mission command "requires the development of trust and mutual understanding between commanders and subordinates throughout the chain of command" (U.K. Ministry of Defence, 2010a, pp. 6-12) and "for Mission Command to function effectively, a superior needs to have trust not only of, but also in his subordinates" (U.K. Department of the Army, 1995, pp. 0218-0220; 2005, p. 120). Trust must be bi-directional:

> "To function effectively, commanders must trust their subordinates, and subordinates must trust their commander…They will also be more willing to encourage initiative by their own subordinates if they have learned to trust that their higher commander will accept and support the outcome" (U.S. Department of the Army, 2003, pp. 2-10).

Second, both armies' doctrine see that trust is variable (U.K. Department of the Army, 1995, pp. 0218-0220; U.K. Ministry of Defence, 2010a, pp. 6-14; U.S. Department of the Army, 1999a, pp. 1-5; 2001b, pp. 4-8; 2003, pp. 2-10). Third, both armies' doctrine see personal qualities as essential to trust, naming three common qualities "personal example, integrity, professional competence" (U.K. Department of the Army, 1995, pp. 0218-0220; 2005, p. 119; U.K. Ministry of Defence, 2010a, pp. 6-14; U.S. Department of the Army, 2003, pp. 2-10).[38] Both armies emphasize shared experience as vital for trust:

> "During these shared experiences, the interaction of the commander, subordinates, and soldiers through communicating up as well as down, reinforces trust" (U.S. Department of the Army, 2003, pp. 2-10).

> "Cohesion is tightened by shared experience. Shared success develops a team's confidence and shared adversity usually enhances group

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[38] Interestingly, the 2010 version of the British Army's "Operations" manual added a fourth characteristic of "attention to detail" as engendering trust (U.K. Ministry of Defence, 2010a, pp. 6-14).

determination and awareness, both of which build trust" (U.K. Ministry of
Defence, 2010a, pp. 2-15).

Fourth, trust is seen as vital to the risk taking nature of the military. U.S. Army doctrine notes
the importance of trust when taking risks and accepting subordinate mistakes (U.S.
Department of the Army, 1999a, pp. 6-23). British Army doctrine goes further, imploring
leaders to trust subordinates *especially* when they make mistakes. British doctrine dictates
that superiors must develop a:

> "[T]olerance of well-intentioned mistakes. If a subordinate cannot trust his
> superior to support him in such circumstances, the bond of trust will be
> eroded; the subordinate will not act on his own initiative; and the moral
> fabric of Mission Command will be destroyed" (U.K. Department of the Army,
> 2005, p. 119).

Trust is clearly vital for superior-subordinate relationships in the military. So would
technology support or undermine trust? Much like Chapter 3's discussion of autonomy, in
the U.S. NCW technologies were thought to "foster trust and mutual understanding" by
enabling "commanders and subordinates at distant locations to receive and participate in
information exchanges" (U.S. Department of the Army, 2003, pp. 4-17). The U.K.'s doctrine
also stated NEC technologies would "lead to better situation awareness across the board,
facilitating improved decision making" (U.K. Secretary of State for Defence, 2004, p. 5). Yet
concerns of how NEC would influence trust were noted. Where before superiors had to
trust, now they could monitor and control (U.K. Ministry of Defence, 2005, p. 9).

4.2.4   Summary

External trust is vital to professions as organizations. Without external trust, professions may
lose the autonomy they seek to defend. Professions therefore expend resources training,
selecting and screening their members. Yet internal trust is also essential to professionals as
individual actors. Without a trusting superior, a professional loses the autonomy they need
to perform their assigned tasks. Without trust, the costly *ex ante* controls lose their value
and professional work becomes scrutinized and monitored.

Trust is clearly variable and depends on a variety of factors. The doctrine of both armies
speaks to the importance of trust, that it varies, that it depends on experience, and that it is
vital to the risk taking nature of the military. The empirical findings will now present how
two trusted institutions, whose doctrine speaks to the value of trust, either adhered to or
abandoned these tenets when powerful tools of control were placed in superiors' hands.

4.3   Empirical findings

Having defined professions and discussed the function of *ex ante* controls, this section presents empirical findings concerning trust. Scholars have sought to model, measure and define trust, attempting to integrate factors as diverse (and difficult to measure) as the trustee's characteristics, the trustor's propensity to trust, perceived risks, environmental factors and historical relationships between trustee and trustor (Butler, 1991; Johnson-George & Swap, 1982; Kruglanski, 1970; Larzelere & Huston, August 1980; Mayer, et al., 1995). That no one model, measure or definition dominates the literature speaks to the difficulty of operationalizing trust. Given this challenge, I sought to determine trust in the eye of the beholder—the surveyed officers. Whether they perceived, or felt, or gave trust would be for them to determine.   By assessing professionals, one could expect to find perceived trust between superiors and subordinates. When trust was not reported, I sought to determine if technology that allowed more constant monitoring, or other factors, influenced the lack of trust. In structuring the interviews, I assessed *ex ante* controls through a series of questions. Were officers trusted by superiors? Did officers trust their subordinates? Did experience influence trust? How did technology influence trust?

4.3.1   Were officers trusted by superiors?

I asked respondents how they would assess the level of trust between themselves and their superiors.

U.S. officers

A large majority of U.S. officers that did respond (13 of 17) stated they were trusted by their superiors.

> "[My superior] trusted me, and he trusted me more than he did some of the other commanders, so he would let me do basically what needed to be done…He gave me whatever I asked for and just very vague guidance here's what I want you to do. Do good things for America" (U.S.-06).

> "[My superior] just understood and trusted what I was doing, you know?" (U.S.-03).

> "What I've seen, at the [1UP] level there seems to be a lot of trust in the [1DN] commanders from what I saw. I don't think I've ever seen a [1UP] commander who did not trust all the way down to the [1DN] level, and they really gave them a lot of leeway and responsibility" (U.S.-11).

"About one-third trust in the company commanders…about two-thirds of the battalion commanders that I've seen…really start getting into more micromanaging and not really trusting the company commanders in second-guessing and trying to control [subordinates], how they fought, or what they did" (U.S.-11).

U.S. officers changed positions frequently leading them to serve under numerous bosses, allowing an assessment of how the personality of the superior influenced trust, holding other factors broadly constant (Strickland, 1958). Simply, some superiors trusted and others didn't. Personality seemed to contribute to this variability of trust:

"It had a lot to do with personality. That guy didn't trust anyone" (U.S.-18).

"With both of [the two superiors], I think even with the one who was an ass…both trusted me implicitly. Even though I had my issues with the initial one, everybody has a different personality type" (U.S.-01).

"[Trust] depends on which commander…A lot of the personalities were a little bit different. The first commander was much more of a micromanager than the second" (U.S.-07).

"The new task force commander was a breath of fresh air…Complete trust in the subordinates" (U.S.-06).

"It falls back down on the unit commander himself. I've been pretty impressed with the Army in the last four years. I worked for seven commanders they all seem pretty relaxed not the micromanaging type" (U.S.-20).

British officers

For the British officers, a large majority (21 of 29) stated they were trusted by their superiors. Again, trust seemed to be understood as related to autonomy.

"Once [superiors] had allocated a task, then they would pretty much trust, and I was trusted to get on with it" (U.K.-8).

"I was completely [trusted]. [Superiors] realized that they had to leave us to get on with it really" (U.K.-3).

"I would say [trust] was very good" (U.K.-15).

"The thing with the team itself the trust was pretty water-tight…we had a pretty robust trust relationship, and we were pretty open with each other and pretty straightforward, and pretty frank" (U.K.-18).

"I am not aware [in my unit] of any point where any officer, senior NCO or commander of any rank was pulled up for doing something that would be considered untrustworthy or put into a position where he would not be trusted in the future" (U.K.-19).

For British officers, trust also varied by superior, conditioned by their personality and the amount of time available to the superior to monitor his subordinates:

> "[Trust] is quite a hard concept to put your finger on. I believe [superiors] had trust that we were competent, but I just feel that they wanted to get involved in order to ensure that it was done in exactly the manner they wanted to" (U.K.-16).

> "I don't know if it was a lack of trust…It was certainly a reluctance to just trust our ability to get on with the job" (U.K.-23).

> "What came down from the commanding officer to us was although yes, we were more than competent to go ahead and do our job, he would always want to keep up on us and know what we were doing, as we would probably want to do with the subunits" (U.K.-2).

> "I didn't get the impression that I was being left alone because I was completely trusted. I got the impression I was being left alone because [the superior] had other stuff to do" (U.K.-27).

> "I think it was probably a competency thing. [Superiors] believed they were more competent, as opposed to trusting us to get on with the job" (U.K.-4).

> "There was a lack of trust [a feeling] I need to eyeball that individual, I need to bring them in, because I need to make sure of what they're doing is going to make me look good, and therefore it's a tighter control" (U.K.-6).

4.3.2   Did officers trust their subordinates?

Officers of both armies reported a high degree of trust between themselves and their subordinates.

U.S. officers

For the U.S., a large majority (15 of 17) stated they trusted their subordinates. The experience of their subordinates influenced trust:

> "I would trust [my subordinates] implicitly…They deserve it. When the platoon leaders had done 2-3 deployments, hundreds of missions, [they] get pretty good. We had a fair amount of screening and selection, and fairly robust training" (U.S.-18).

> "I had to trust my senior NCOs…there was enough faith, competence and trust in my subordinate units…you developed that confidence. These were guys you can trust" (U.S.-20).

> "[My] platoon leader I trusted…probably in hindsight he was probably too young to be trusted like that. Who knows? It went well and no one got hurt" (U.S.-12).

British officers

An even larger majority of British officers (23 of 26) stated they trusted their subordinates. These officers mentioned a trust in the training and experience of their subordinates.

> "I trusted the [subordinates] to fight the battle" (U.K.-30).

> "We have to trust when you give them an instruction they're going to carry it out (U.K.-24).

> "I've been under fire, I've seen how blokes perform under fire, and I think I trust that and let [my subordinates] get on with it" (U.K.-7).

> "If you are going to give someone two stripes on their own, as a full corporal, then you are recognizing that he is a trustworthy character" (U.K.-26).[39]

4.3.3   Did experience influence trust?

By passing the *ex ante* hiring, vetting and training, each officer can be assumed to have a baseline experience. The average officer of the surveyed group was in their mid thirties (U.S.—37 years, U.K.—33 years) with a length of service well over a decade (U.S.—15 years, U.K.—14 years) and with a mean of some level of graduate education. These characteristics were rarely mentioned in the substantive portion of the interview. What was mentioned was the experience of the surveyed officer in the specific position prior to deploying (the average for U.S.—7 months, U.K.—5 months) and whether the officer had served with their superiors and subordinates prior to deploying. Those officers with more experience in the specific job, and shared experiences with superiors generally reported being trusted:

U.S. officers

> "If [my superior] didn't trust me he wouldn't have kept me in charge…trust between the commander and I was key. I see it as, I was [in the unit] for a three year stint, I was part of his team the whole time... [The commander would] trust in his subordinates, after he'd seen a couple hundred missions" (U.S.-19).

> "Trust, certainly [prevented tight superior control]. Experience, definitely [prevented tight superior control]" (U.S.-01).

> "[We had] a lot more [trust]…We had basically been as a group, a coherent group for almost two years before deployment, and the commander had been in the group for two years" (U.S.-08).

British officers

> "[I was trusted] because I knew how this [1UP] commanding officer ticked, and I served alongside the [1UP second in charge] as well in the past" (U.K.-26).

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[39] 'Two stripes' refers to the physical description of the insignia worn to indicate the rank of corporal.

"[1UP] had been my regimental commander for the previous eight months…So he knew me very well, and I knew him very well" (U.K.-27).

"I was trusted more on the second tour, cause I had already deployed out there…I had nine years literally on the front line" (U.K.-5).

"But [trust was good] because we had trained as a unit together, we formed quite a strong bond" (U.K.-11).

"We had a pretty good working relationship with [1UP] anyway, and we trusted each other" (U.K.-23).

4.3.4   How did technology influence trust?

The U.S. and British armies' doctrine speculated that information technology would enhance trust and mutual understanding. I sought to determine how trust was affected when technology that allowed greater superior control was introduced.

U.S. officers

As more technology entered the theatre, U.S. officers noted that trust diminished:

"[Technology] delays the decision to trust or not trust the guy…We are steering away from trusting the boots on the ground and pulling back and trusting what tech tells us. It got to the point where commanders were believing the different side of the story from the guy on the ground. There is an overreliance on technology to tell us what to trust" (U.S.-21).

With new monitoring technologies employed, U.S. officers noted how decisions once made at their level could made at a higher level:

"[On the first tour] I was pretty much left to my own devices completely. I had no electricity. I had only an FM [radio] communication with my chain of command, and they were twenty kilometres away…[On my second deployment] with all of the IT…people were sending e-mails from, like, one office next door to another office next door…So the trust level just was gone" (U.S.-10).

"[Technology] keeps you honest…If somebody says, yeah, I've got a patrol out there, you can look at the screen and say really? Because on the screen, I don't see anything.   [Then they'd say] I mean, oh, they're about to leave right now" (U.S.-03).

Officers with more recent deployments reflected that monitoring tools were emplaced and experience increased in the appropriate use of these tools. As time passed, more officers became familiar with new technology and adopted practices that seemed to foster more, not less, trust:

"In all directions, the communication facilitates a better level of trust" (U.S.-19).

"Now once [superiors] trust, it is a stronger level of trust then what I saw in the past…In the past there was always that level of not knowing. Now they know exactly what I am doing…[technology] builds a level of trust" (U.S.-21).

"[With technology] I understand what [subordinates] are doing…That makes trust, faith and confidence even more and more critical, and make us a better organization" (U.S.-20).

British officers

British officers with multiple deployments shared a perspective on how trust was influenced

over time, invariably towards less trust:

"If you have a group of individuals who get along and trust each other, it is a good environment to do a good job. The second tour there wasn't as much trust. It led to a more oppressive dominating, top down environment. It was business…the micromanagement showed itself early on…Do you trust me to do it? Then go away. There was much more mistrust the second time" (U.K.-1).

For the British Army, the invasion phase, where units were widely dispersed, was

characterized as a phase with very little monitoring and a broad degree of trust:

"Communication was non-existent in the early days, and so I had to let it go on trust. [Subordinates] had their mission and they executed mission command" (U.K.-5).

"We didn't have the resources to try to monitor our guys. We had to trust when you give them an instruction they're going to carry it out…they're expected to crack on" (U.K.-24).

"The war-fighting was exactly as expected. I was given total trust from my commander. I got exactly the orders I was expected to get…there was no micromanagement in that first phase" (U.K.-21).

However, one officer noted how these tools provide a temptation not to trust:

"The difference between effective use and ineffective use of these [technologies] is trust and confidence upwards and downwards, but principally downwards. Also probably trust and confidence in one's own self as a commander" (U.K.-25).

British Army officers mentioned that the trust of the technology influenced how they

were employed:

"If you can trust the equipment, it would have made life a lot easier seeing where people were" (U.K.-26).

"The other thing is the human factor…you don't want to press the fire button because you don't trust the technology as opposed to a voice shouting 'fire!', then they'll fire. And the same goes for the voice orders. You've got somebody screaming on the radio, you get that sense of urgency where if it's just another e-mail…then you don't have that" (U.K.-13).

The last quote brings up a subject that will be addressed in greater detail in Chapter 7—whether technology produces a bias for quantitative measures over qualitative judgement. Early studies of information technologies suggested that being able to monitor subordinates, without their consent, awareness or participation, depersonalizes the interaction, replacing previously formed trust with quantifiable data (Kruglanski & Cohen, 1973; Strickland, 1958; Zuboff, 1988).

4.4   Conclusion

> "When [technology] is used for good, it'll be good. And when you use it for
> evil I'm sure it will be bad" (U.S.-03).

The primary aim of this chapter was to assess whether superiors predisposed to trust their subordinates would be more resistant to nanomanagement. This chapter defined a profession, a definition that characterizes the U.S. and British armies. This chapter then explored whether being a member of a profession would reduce the likelihood of nanomanagement. External trust was introduced as vital to professions, and internal trust, or trust by superiors was seen as essential to professionals. By examining the doctrine of the U.S. and British armies, this chapter highlighted the importance of trust to both of these militaries. Using the doctrinal framework of trust, this chapter then examined whether officers were trusted by their superiors, whether they trusted their subordinates, how experience influenced trust and finally how technology affected trust.

I anticipated some variation between national cultures. With the rich history of mission command inculcated into the British Army's culture, I expected a greater degree of trust to be reported amongst British officers. However, I did not observe a broad difference between U.S. and British armies' officers; both claimed to be trusted and to trust their subordinates. Factors such as physical separation, the personality of their superiors, a culture of action-orientation, and the presence of monitoring technology all contributed to these mid-level officers' perceptions of trust. The presence, or absence, of trust should not be considered a cause of nanomanagement. Just as nanomanagement may occur in organizational cultures that value subordinate autonomy, nanomanagement may occur in professions that prefer to employ *ex ante* control.

Yet was there ever a preference for *ex ante* controls, or simply a tolerance of trust as an imperfect tool of control in the absence of cost effective *ex post* monitoring? As industrialized militaries grew in size and structure, generals became more removed from the

fight, more constrained by time, and less able to monitor the real-time output of their subordinates. A thick fog of war rolled in, obscuring the subordinate, leaving the most untrusting general few options but to trust their subordinates. Modern professions were born out of this separation between superior and subordinate. Military academies were founded, officer training enhanced, and the modern professionalization of the military began. Superiors simply had to trust more in their *ex ante* controls in large part due to an inability to monitor *ex post*. With each new technology that reduces the information gap between superior and subordinate, the preference for *ex ante* shifts toward *ex post* controls, weakening the professional's position.

Does nanomanagement then mean the death of professions? Nanomanagement indeed threatens the trust that is the *sine qua non* of professions. However, saying nanomanagement means the death of professions would be a step too far too soon. Nanomanagement certainly puts the professional in a more fragile position. Yet a new technology's presence does not determine whether a superior should trust; a superior's *use* of technology "guided by human design and needs" determines whether a subordinate is trusted more or less (Coker, 2008, p. 145). Technology does not nanomanage people; people nanomanage people.

This variability was seen in the evidence. Not only did personality and experience seem to dictate trust, as the technology became more familiar, many U.S. officers reported that the technology further enhanced trust. If this evolution holds true, I would expect to see British Army officers claiming that trust improved as more officers had more experience employing these tools. While these technologies are initially disruptive and stretch the organization, professional superior-subordinate relationships tend to bounce back to near their original form.

Chapters 3 and 4 assessed two potential causes of nanomanagement that established baseline understandings and expectations of autonomy and control. In Chapter 5, I begin to focus more on its effects. In an era of increasing adoption of technology, a proliferation of tools allows the superior real-time observation of the subordinate regardless of the physical distance that separates the two actors. Tools now fielded transmit data in ever increasing quantities, at ever increasing speeds, to ever more distant superiors at little to no cost to the subordinate. To assess the effects of nanomanagement, the next chapter examines how information technologies change the basic cost calculus towards *ex post* monitoring.

CHAPTER 5 *Ex post* control

Previous chapters largely focused on explaining why an organization's culture and predisposition towards *ex ante* controls might inhibit or cause nanomanagement. Neither factor prevented nanomanagement—it may occur in organizations, despite organizational cultures that value subordinate autonomy. Nanomanagement may also occur in professions, despite these organizations expending resources to establish *ex ante* controls to select and train subordinates so that they could be trusted.

This chapter examines the effect of nanomanagement as it reduces and potentially reverses the information asymmetry between subordinates and superiors. Low-level subordinates know more about themselves (i.e. where they are, what they are doing and whether they are accomplishing delegated tasks) than superiors do (Kiewiet & McCubbins, 1991). The separation between superiors and these street-level subordinates allow these low-level actors discretion, interpreting guidance as they see fit (Lipsky, 1980). Subordinates seek to maintain this information asymmetry; superiors seek to overcome it. To overcome this information asymmetry, superiors may emplace *ex post* controls (Brehm & Gates, 1997; McCubbins & Schwartz, 1984; Pratt & Zeckhauser, 1985) and closely monitor their subordinates. In the past, perfect control over widely dispersed subordinates may have been desired, was in some cases impossible, but in all cases was costly such that superiors cannot "perfectly and costlessly monitor" their subordinates (Pratt & Zeckhauser, 1991a, pp. 2-3). Technology has changed the costs calculus for *ex post* controls. The cost of *ex ante* controls is largely fixed; technology may make screening candidates easier but has largely not reduced the cost, both temporal and financial, of professional schools. However, *ex post* control costs vary, with technology dramatically reducing the cost of information. With modern technology, superiors can simply know more for less.

What is the effect of lowering and sometimes eliminating the costs traditionally associated with *ex post* control? Could technologies not just eliminate the information asymmetry but reverse it so that superiors could know more about subordinates than the subordinates know themselves? This chapter examines how reductions in the cost of *ex post* control influence superior-subordinate relationships. With the proliferation of tools that enable the most senior superior to monitor the most distant and junior subordinate, the period of study (2003-2008) captured a dramatic and rapid fielding of information technology onto the battlefield. In both armies, superiors employed many more technological tools to exert *ex*

post control in 2008 than they did in 2003. Yet during the period of study, the resource rich U.S. Army fielded technologies at a much more accelerated pace than the relatively resource poor British Army. To assess how the cost of *ex post* control influences superior-subordinate relationships, this case provides both comparative within an organization and between two organizations.

Section 5.1 discusses *ex post* control, using transaction costs theory to frame how technologies influence these costs of control. Section 5.2 expands past the classic choice of police patrols and fire alarms and proposes a new typology of control, reflecting the tools superiors use today to control subordinates—*trackers*, *drones* and *long screwdrivers*. Section 5.3 will present empirical findings from the interviews. Section 5.4 will conclude.

5.1   Intraorganizational control: transaction costs, *ex post* monitoring

This section introduces the transaction costs associated with *ex post* controls as one organization controls another (*inter*organizational control). Superior organizations have been seen to prefer fire alarms, where the cost of control is shifted to other actors, instead of police patrols, where the superior organization bears these costs. However, the stable preference for fire alarms should be reconsidered when examining control inside an organization (*intra*organizational control).

5.1.1   *Ex post* interorganizational control: police patrols and fire alarms

How much autonomy should a superior grant a subordinate? While a superior may be tempted to closely monitor all subordinates, control generates transaction costs for both superior and subordinate (Coase, 1937; Ouchi, 1980; Williamson, 1975, 2007) as they expend resources to overcome the information asymmetries endemic to delegation (Cordella, 2006, p. 196). For the superior, time spent collecting and analyzing subordinate information is time spent away from the superior's other tasks. For the subordinate, time and resources spent answering the information demands of superiors is time spent away from the delegated task. Where the cost of *ex ante* controls are largely fixed and expended prior to delegation, *ex post* control costs fluctuate depending on how tightly a superior seeks to control a subordinate.

Superiors prefer the more cost efficient manner of oversight. In an interorganizational study of how Congress controlled bureaucracies, McCubbins and Schwartz proposed two options through which superiors seek to control subordinates while minimizing transaction costs:

police patrols and fire alarms (1984). 'Police patrols' are when the superior retains the responsibility for the monitoring, expending his resources to watch, investigate and record subordinate activities. The superior may also depend on external parties to act as 'fire alarms' to alert the superior when subordinates act outside of their mandate. By empowering external parties (e.g. media, interest groups, etc.) to serve as fire alarms and notify the superior of deviant behaviour, the superior is freed from spending their own resources on control (McCubbins & Schwartz, 1984).[40] Further, superiors may seek to incentivize low-level actors within organizations to serve as 'whistle blowers', to expose activities that the senior levels of these monitored organizations may seek to obscure (Near & Miceli, 1995).

When deciding between police patrols and fire alarms the benefit of additional control is weighed against the transaction costs (Lupia & McCubbins, 1994). As the collection, transmission, storage and analysis of information has long been seen as the primary source of transaction costs (Machlup, 1962; Pratt & Zeckhauser, 1991a, p. 11), superiors should "do the best they can" to reduce the cost of information and to create an environment of "costless information flow" (Pratt & Zeckhauser, 1991a, p. 3). Compared to just 20 years ago, superiors today have many more tools to create that costless information flow (Ciborra, 1993; Malone, Yates, & Benjamin, 1987; Wigand, Picot, & Reichwald, 1997). Technology has decreased the cost of information analysis (Granstrand, 1999), transmission (Ciborra, 1993), collection (Castells, 2000; David & Foray, 2002) and storage (Barbosa & Friere, 2010). As technology has been adopted, the cost of *ex post* monitoring of subordinates by superiors has been reduced. So does the long held preference for fire alarms over police patrols still hold? The preference is changing, especially when one looks at control inside an organization.

5.1.2   *Ex post* intraorganizational control

Can *inter*organizational control explain control within an organization? Brehm and Gates argue that in order to understand interorganizational control, one must first understand

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[40] Outsourcing monitoring to third party fire alarms or internal whistle blowers may produce additional costs. These third parties possess their own interests with little predicating that these interests must seamlessly fall in line with the superior's. This allows for another layer of information asymmetry where the true actions of the subordinate are filtered through the middleman's interests. This increases the chance for false alarms (when the subordinate's actions are in conflict with the middleman yet not in conflict with the superior) and failed alarms (when the subordinate's actions are in line with the middleman yet in conflict with the superior) (Lupia & McCubbins, 1994, pp. 97-98).

superior-subordinate relationships within an organization, what they term *intra*organizational control (1997, p. 3). Costs are calculated differently when looking at control within an organization.

When analyzing control between different organizations, when the superior organization can distance itself from an exposed deviant subordinate, a fire alarm preference is understandable. However, where the superior shares the same organization as the subordinate, additional costs associated with fire alarms must be considered. Instead of an alarm ringing in the fire house, in intraorganizational control, third party notification of subordinate misbehaviour is more closely analogous to an air raid siren blown after a house has burned to the ground. Instead of only the firemen being notified of a burning house, the entire community is alerted. The loss of the house is not the only cost; that the firemen did not respond in time is another concern. In interorganizational monitoring, when third parties expose subordinate shirking, the superiors do not share blame for this behaviour, and are judged largely on whether their response was appropriate or not. This same logic applies to whistle blowers; where it might make sense to incentivize whistle blowers when seeking interorganizational control, there is less incentive in intraorganizational control.[41] When assessing *intra*organizational control, fire alarms cost more.

These additional costs profoundly affect professions. If the media runs a story about abuse of prisoners by prison guards, an elected body may deflect this criticism, stating that the guards were part of a different organization. However, if the media reports abuses of prisoners in a military jail, military superiors may not deflect blame so easily; the reputation of the entire military organization is diminished. Members of a common profession, the senior military superiors may blame deviant actions, but subordinate misbehaviour reflects and impacts across the entire organization, including the superior. As mentioned in Chapter 4, professions depend on external trust. In turn they are granted what they so desperately seek to defend—autonomy. With professions in perpetual competition, living, growing and

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[41] In intraorganizational control, especially in professions, a dependence on whistle blowers is highly problematic. First, it is unlikely to happen. In the military, officer promotions are heavily dependent on their superiors' ratings; blowing a whistle is not good for an officer's career. Second, there is a danger that their whistle may be heard outside the organization, damaging the profession's reputation. In the military context, one must look no further than the recent U.S. and British armies' scandals concerning torture and medical treatment of their wounded (Borger, Harding, Hall, & Urqhuart, 2004; Priest & Hull, 2007; Temko & Townsend, 2007). In these cases, internal whistle blowers had already sounded alarms, yet meaningful reform was not instituted. That that these scandals were eventually exposed by third parties (media) fire alarms, meant that the military faced broad external investigations, firing and demotion of senior military officials and increased oversight. There is some speculation that prosecutions of soldiers are done quietly to avoid damage to the military's reputation (T. Edmunds & Forster, 2007, p. 74).

dying based on how well they are trusted, a third party fire alarm provides fuel for competitors who seek to encroach on the profession's domain (A. D. Abbott, 1988).

For intraorganizational control, not only does the cost calculus surrounding fire alarm preference change, but police patrols also must be assessed differently. Police patrols simply cost less inside an organization.[42] Monitoring of a familiar organization comes at less cost to the superior than monitoring some foreign or alien organization. Just as police that grew up in the neighbourhood they now patrol know the people, the personalities, the slang and the areas of likely trouble, they can patrol at lower cost than a policeman from a different town. Further, these hometown police possess incentives to keep the neighbourhood under order and do not want other cops or agencies interfering.

5.1.3 Summary

The classic challenge of superior control is to reduce the information asymmetry between themselves and their subordinates at the lowest cost. Police patrols and fire alarms present two options for superiors. For interorganizational control, fire alarms are seen as preferred to costly police patrols. Yet this preference may shift when one examines control within organizations, especially professions. If the total cost of a police patrol or fire alarm includes the cost of external sanction, the traditional preference for fire alarms must be reconsidered. When the cost of external sanction is high, especially in professions, intraorganizational police patrols, albeit still costly, may be preferred.

What if the cost of a police patrol fell to zero? What if information asymmetry could not just be reduced, but reversed, with superiors knowing more about subordinates than subordinates know of themselves? Modern technology that enables nanomanagement promises and, in some cases, delivers this. The next section updates police patrols for the contemporary age.

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[42] Police patrols have long been a feature of control within the military. U.S. doctrine has recommended a technique used by Napoleon, a principle called the "directed telescope" of enlisting a small group of trusted officers that could move freely throughout the battlefield to observe specific events and report back directly to the commander (U.S. Department of the Army, 2003, pp. 3-23). This technique "remains a valid technique, even with the advent of modern [technology]" (U.S. Department of the Army, 2003, pp. 3-24) and is being employed in Afghanistan by General Petraeus (Teague, 2011). U.S. Army doctrine also recommends 'staff visits', where commanders are encouraged to leave their own headquarters and visit subordinate elements (U.S. Department of the Army, 2003, pp. 3-23). A classic form of police patrols, these visits place large costs on both the superior and subordinate hosting unit.

5.2   Police patrols updated: trackers, drones and long screwdrivers

In developing police patrols and fire alarms, McCubbins and Schwartz (1984) employed metaphors common to the security services of their day. This typology is still useful for understanding control between organizations, but has more limited utility in explaining the costs and benefits of control within an organization. To understand contemporary intraorganizational control the effect of technology on *ex post* costs must be assessed. Since cost is the main determinate of superiors preferring fire alarms over police patrols, this section introduces and examines three sub-categories of police patrols—trackers, drones and long screwdrivers—that exhibit cost savings over traditional police patrols.

Each of these sub-categories allows greater superior control by reducing and reordering the cost structure. One expects superiors to pursue and employ technology that allows them, at lower cost, to overcome information asymmetry. It is safe to also assume that if, at lower cost, superiors can better know where their subordinates currently are, what their subordinates are currently doing and whether their subordinates are accomplishing the delegated task to the standard prescribed, they will. Yet these tools may also decrease transaction costs for subordinates.

5.2.1   Trackers

A tracker is *a tool that automatically communicates information about subordinates to superiors, at little to no cost to the subordinate.* Superiors can install trackers on all subordinates, leading to constant, real-time reporting of subordinate positions and actions. Trackers create a one-way communication of previously hidden information about the subordinate to the superior. A global positioning systems (GPS) sensor that relays a subordinate's position, a camera on a computer (or helmet) that relays the work currently being performed by a subordinate—these are trackers.

Superiors will employ trackers widely. The superior saves costs by not having to ask the subordinate their location; they are provided information previously known only to the subordinate without having to actively request it. Furthermore, trackers reduce to zero the chances of false information or inaccurate reporting from subordinates.

Trackers are largely unobtrusive and costless to the subordinate. For the subordinate, a tracker actually saves costs in that the subordinate no longer needs to communicate his

location or activity to the superior—the tracker does so automatically. As the tracker communicates information known to the subordinate, but unknown to the superior, a tracker reduces but does not reverse information asymmetry. Trackers show superiors a subordinate's exact location or current activities. One may assume the subordinates already know their location, what they are seeing and what they are doing. With trackers, superiors now know this information, in real-time.

Trackers are powerful regardless of whether they are being actively monitored. This panoptical form of observation, where the subordinate does not know whether they are being actively monitored by a superior, may produce the control desired by the superior at no cost.[43] Knowing that the superior knows their location may produce a Hawthorne effect (Landsberger, 1958; Roethlisberger, Dickson, & Western electric company, 1934), modifying subordinate behaviour away from shirking simply by observation. It is expected that some subordinates will see trackers coming at a cost to their autonomy, even as they save the subordinates the transaction costs of answering information requests from above.

As with most technology adoption, there is an initial cost of purchasing and fielding tracker technology. As both superiors and subordinates employ these trackers, one should expect to see new rules form as a logic of appropriate use of these technologies eventually emerge (March & Olsen, 2004). Yet overall, as trackers reduce subordinate reporting while increasing superior knowledge, both superior and subordinate should see trackers largely as a net benefit.

5.2.2   Drones

To monitor what their subordinates are currently doing, a drone is *a tool that enables a superior to actively monitor and record a subordinate's actions*. Like trackers, drones create a one-way communication of information about, but not from, the subordinate to the superior. Unlike trackers, which merely reveal information known to the subordinate but hidden from the superior, drones provide the superior information about the subordinate's activities that the subordinate both knows and does not know. UAVs that provide a bird's eye view of subordinate action, cameras that show superiors information both known and unknown to subordinates—these are drones.

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[43] The Panopticon prison was envisioned by Jeremy Bentham in 1787. He sought to save costs in prison design by designing a structure such that prisoners could be watched at all times. It was more fully described by Foucault (Bentham & Bozovic, 1995; 1977).

Drones dramatically reduce costs to the superior; therefore one expects to see them widely fielded by superiors. Drones allow superiors to gain access to previously unavailable information about the real-time activities of their subordinates. In some cases, superiors would have needed to risk their life to obtain this information; with drones, they may virtually fly to the scene of action, without risk. A drone removes many of the costs of traditional police patrols. From the comfort and safety of a removed location, a drone provides superiors a real-time ability to see what subordinates are doing.

What makes drones most powerful is their ability to reverse information asymmetry. A drone transmits information about the subordinate that is both known and unknown to the subordinate. Superiors watching a UAV feed may observe information known to subordinates (e.g. where their truck is parked, what building was just entered). Yet with drones, superiors may also observe information unknown to the subordinate (e.g. that two people are on the roof of the building just entered).

Drones allow the superiors to focus their monitoring attention on a single event or actor, seeing a level of detail long restricted by the physical distance separating superior from subordinate. Yet that clarity comes at a cost. Like peering through a telescope, drones transfix the superior's attention to a small field of vision, to the exclusion of everything else occurring. The time spent directly monitoring the drone's feed are new costs incurred by the superior. Furthermore, drones do not just bring the attention of a superior to a low level; they also constrain the superior's level of analysis and actions. If a superior is focused on monitoring the subordinate's current actions, they expend time and attention away from the superior's tasks.

Like trackers, one should expect superiors to speak of costs of purchasing and fielding drone technology and subordinates speaking of costs of learning and understanding a new technology. Like trackers, drones do not present immediate transaction costs to the subordinate. For subordinates, with drones employed, this will reduce the need to report to superiors what superiors can now see with drones. Yet unlike trackers, a drone may reverse the information asymmetry. With superiors knowing more about what a subordinate is doing than the subordinate knows, subordinates will see drones as a significant cost to their autonomy.

5.2.3 Long screwdrivers

Finally, to determine whether their subordinates are accomplishing the delegated task to the standard prescribed, a long screwdriver is *a tool that allows a superior to both request and receive previously unavailable information, and to direct action at a distance and speed previously impossible*. Differing from trackers and drones, which may reduce costs for both superiors and subordinates, long screwdrivers only increase costs to subordinates by compelling the production of information in increasing quantity, quality and speed.[44] Where trackers and drones may reduce reporting, long screwdrivers increase it. Trackers and drones are tools that superiors use to gather information on subordinates; long screwdrivers are tools that superiors use to control subordinates. Long screwdrivers allow superiors to connect to, lever and torque subordinates at great distance. The suite of tools that connect superiors to subordinates—email, smartphones, video teleconferencing, instant messaging, bandwidth and satellite communications—these are long screwdrivers.

For the superior, long screwdrivers allow them to request and receive information about the progress and current status of delegated tasks, previously unavailable due to physical separation and communication limitations.[45] Long screwdrivers widen and lengthen the pipe of information connecting superior to subordinate. When connectivity expands, there is a greater demand for detail. As more information *can* be requested, more information *will be* requested, in increasing quantity, quality and speed. Like trackers and drones, long screwdrivers can be understood as decreasing the discretionary space and autonomy of the subordinate. This increases the costs to the subordinate in that they now must dedicate more time and effort to fulfil the information demands of the superior. Unlike trackers and drones, long screwdrivers enable two-way communication, providing superiors an iterative tool for immediate and distant control.

With long screwdrivers more of the subordinate's time will be dedicated to answering the increasing requests for information from now connected superiors. Their actions will be

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[44] Describing the evacuation of American forces from Saigon, Admiral Metcalf coined the phrase, 'six thousand mile screwdriver'—the minute direction of the day-to-day operations of a field commander by higher and remote authority" (Metcalf, 1986, p. 278). As our definition focuses less on physical separation, we adopt the term 'long screwdriver'. Further, this term is popularized in British military writings "[T]he British military is also acutely aware that by offering senior commanders a clearer picture of what is happening…networking may tempt them to take out the 'long screwdriver' and direct operations on the ground" (Farrell, 2008, p. 788).

[45] While this chapter focuses on how long screwdrivers should be understood as a sub-category of *ex post* police patrols, in this sense they can also be a variant of *ex ante* deck stacking. As Chapter 4 explained, deck stacking sought to control subordinate behaviour *ex ante* by specifying clear procedures, mandatory reports and other controls that would guide the subordinate once delegated a task. But once a deck is stacked and dealt, the subordinates would play the hand. With long screwdrivers, superiors can alter the hand while it is being played, in real-time.

more tightly controlled. For superiors, one should expect to see more control of subordinate activity at a level previously unavailable and additional costs incurred processing the new abundance of data.

5.2.4   Summary

Trackers, drones and long screwdrivers are an overdue update to understanding contemporary *ex post* intraorganizational control. While a superior may still choose to conduct a costly traditional police patrol, these tools allow superiors to know where their subordinates currently are, what their subordinates are currently doing and whether their subordinates are accomplishing the delegated task to the standard prescribed at far less cost. While one should expect to see a variability of costs, in their entirety these control mechanisms should be seen as steps towards placing increasing control back into the hands of distant superiors at the cost to the subordinate's time and autonomy. With these tools more is observed and less is obscured.

These technological tools are not abstract theoretical concepts, but are currently employed. While these metaphors originate on the battlefield, they are analogous to tools used to control other professions. Enabled by new technology, and seen as more cost effective than traditional police patrols, they reflect how internal superiors may now control their subordinates.[46] The real world influence of their employment will be analysed in the words and responses of the mid-level officers who act as both superiors and subordinates, both empowered and controlled by trackers, drones and long screwdrivers.

5.3   Empirical findings

This empirical section explores the sub-categories of trackers, drones and long screwdrivers. Each of these sub-categories was observed in Iraq from 2003 to 2008. Trackers manifested in technologies that leveraged GPS to allow superiors to constantly know where their most junior subordinates were. Drones were employed in the form of UAVs that allowed superiors

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[46] These tools generally empower superiors, providing greater tools to observe and control subordinates. But they may also empower subordinates, enabling 'sousveillance' or the recording and monitoring of events from below, as opposed to traditional surveillance or the recording of events from above (Mann, Nolan, & Wellman, 2003). Where in the past, the lowest levels in a hierarchy may have suffered mid-level malfeasance, now that they too can record their actions and their immediate superior's actions, orders, and directives. I expect these tools to occasionally empower low-level subordinates. Chapter 6 will explore how these tools affect different actors, at different levels of the hierarchy.

to actively monitor and record specific events in their organization. Long screwdrivers encompassed a broad suite of tools—from computers, to email, to networks—that allowed a superior to both request increasing quantity and quality of information at greater speed, and then direct action at greater distances.

Before presenting the empirical evidence for each respective sub-category, this section will discuss the expanding capability of these technologies as employed, albeit at different rates, by both armies in Iraq. Then, in order to capture how the increased use of these tools influenced superior-subordinate relationships, empirical evidence relating to each sub-category will be presented. Each interview asked the surveyed officers how they interacted with their superiors and subordinates, and specifically what technology was available and employed. Some officers (mostly U.S.) saw trackers, drones and long screwdrivers employed; some officers (mostly British) saw none. Based upon their answers to these initial questions, I could then probe these interactions with technology, exploring the officer's perceptions of costs and benefits.

5.3.1   Trackers

A tracker is a tool that automatically communicates information about subordinates to superiors, at little to no cost to the subordinate.   Since the dawn of warfare, superiors have long sought to know their subordinate's location. This knowledge could determine victory or defeat; therefore the pursuit of this knowledge could consume much of a superior's time and attention. Standard operating procedures (SOPs), mandatory reports and drills were established to have subordinate leaders report their position and disposition of their forces at set intervals. Subordinates, even through the late twentieth century, would often have to stop movement, pull out a map, use land navigation skills, establish communications and take the time to report their position—costly propositions in the middle of war. In the days before deployment of GPS, this would produce the inevitable errors of inaccurate reporting, plus the potential costs of transmission of grid coordinates and locations across an unsecure radio net. Fielded at dramatically different rates, the FBCB2 (U.S.) and Bowman (U.K.) systems seemed to solve this age old problem.

U.S. trackers—FBCB2: Force XXI Battle Command Brigade and Below
The U.S. Army's Force XXI Battle Command Brigade and Below (FBCB2), is a digital command and control system. Using GPS transponders, FBCB2 continuously transmits its location via radio or satellite transmission (U.S. Office of Force Transformation, 2005). The key interface

is a vehicle mounted touch screen (Figure 5.1) that can display imagery, operational graphics or maps (Figure 5.2). Additionally, the FBCB2 can transmit text messages and reports through existing FM and satellite radios. Each vehicle's location is represented by an icon on a screen, which is constantly tracked and updated (Dunn, 2003). Users of FBCB2 not only see their own location, but feasibly the location of all other FBCB2 systems.

Figure 5.1 FBCB2 mounted in a U.S. Army vehicle[47]

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[47] *Source (U.S. Army PEO C3T, 2009).*
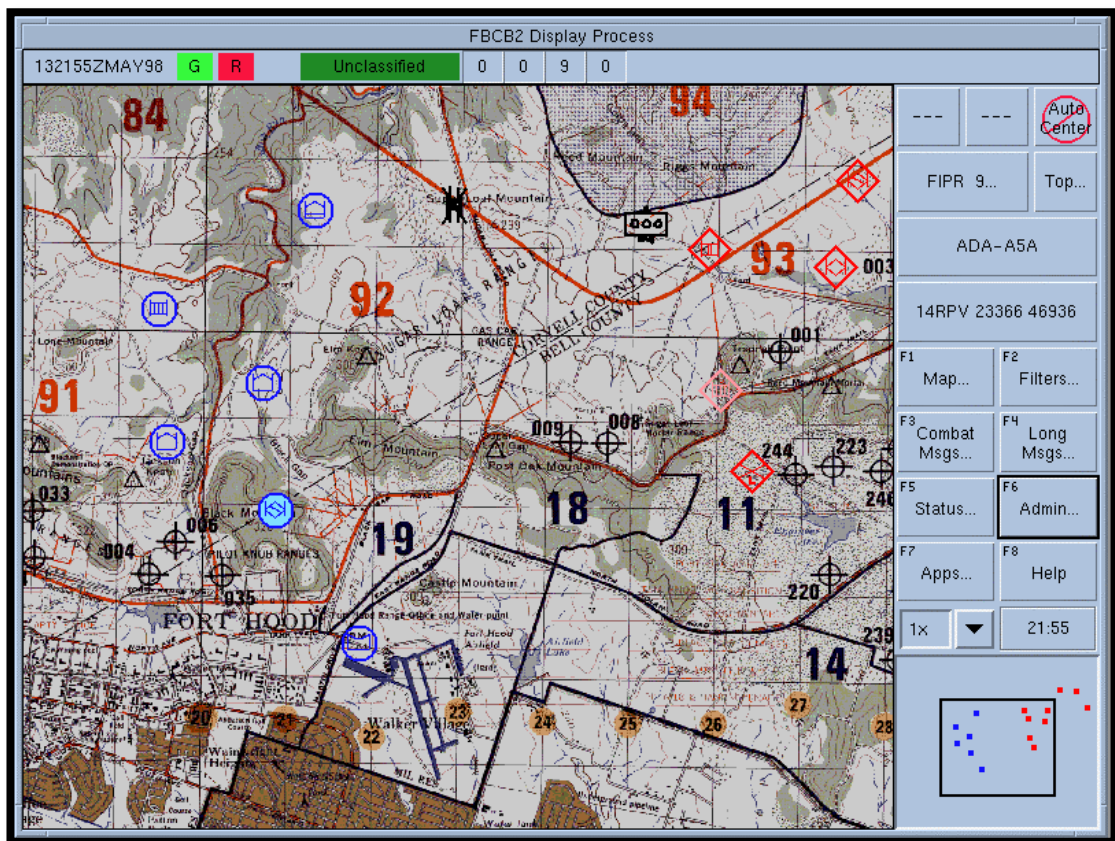
Figure 5.2 FBCB2 screen[48]

The Iraq War would be the first large scale test of this tracking technology (Dunn, 2003; U.S. Office of Force Transformation, 2005). In 2002, during the preparation for the Iraq invasion FBCB2 production was increased and rapidly fielded. The U.S. Army fielded 1,242 of these systems prior to the invasion. The British Army did not have a comparable capability; they decided to lease and install 47 FBCB2s in select British combat vehicles (U.S. Office of Force Transformation, 2005). Following the invasion phase and what was seen as a successful fielding, FBCB2 systems were installed in more vehicles. As of 2007, 11,000 FBCB2 systems were fielded in Iraq, in every other vehicle (St. Claire, 2011). As of 2010, the U.S. Army had fielded more than 72,000 FBCB2 systems worldwide with the objective of 105,000 systems fielded by December 2012 (Deagle.com, 2011; St. Claire, 2011; U.K. Quality Assurance Agency, 2009).

British trackers—Bowman

The U.K.'s version of the FBCB2 is the Bowman system, a long promised update to the 1940s-era Clansman radio system. The Bowman provides for secure voice and data and is mounted in vehicles; while initially intended to also include the FBCB2 ability to track

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[48] *Source (Weaver, 2001).*

vehicles, the early version simply provided a new, more secure radio. Figure 5.3 shows the Bowman mounted in a British Army vehicle.

Figure 5.3 Bowman mounted in a British Army vehicle[49]

In 2002, General Dynamics U.K. was awarded the £2.4 billion contract to develop the Bowman for the British Army (U.K. National Audit Office, 2006). Despite numerous contracting and manufacturing delays, the first unit with the Bowman system installed deployed to Iraq in April 2005, although without a tracking capability similar to FBCB2 (Pfeifer, 2005). As of January 2006, 4,079 vehicles had been installed with Bowman, approximately 25% of what was projected in 2002 (U.K. National Audit Office, 2006, p. 31). In 2006, an additional £121 million of funding was allocated to "overcome technical difficulties" to accelerate the fielding of Bowman's tracking capability (U.K. National Audit Office, 2006, p. 3). While lauded by superior officers (U.K. Ministry of Defence, 2006), as of 2008, the Bowman system was still being broadly critiqued for its limitations, specifically battery use and not having the ability to track forces like the FBCB2 (Page, 2008). Although the program initially intended to install Bowman in "almost all moving equipment in the Armed Forces" (Pfeifer, 2005), budget cutbacks put the full implementation of Bowman in jeopardy (Ackerman, 2009).

In sum, during the period of study, the U.S. Army rapidly adopted and fielded tracker technology (FBCB2) in tens of thousands of vehicles in Iraq. Conversely, the British Army

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[49] *Source (General Dynamics-UK, 2011).*

initially fielded radio systems (Bowman) that did not provide tracker capability. I expected primarily only U.S. officers to express opinions about the cost and benefits of trackers.

Benefits of trackers

U.S. officers reported trackers saved them time. With the FBCB2, they could look on the screen and known where their subordinates were; their superiors could do the same. This reduced radio traffic to both subordinates (St. Claire, 2011; U.K.-11; U.S.-03; U.S.-09) and superiors (U.S.-03; U.S.-19):

> "[With FBCB2] you are silent, no radio traffic but you know exactly where everything is…Without it, there would be significantly more radio traffic but not significantly more situational awareness" (U.S.-20).

> "Now it is almost too quiet on the radio" (U.S.-18).

> "There is an art and the science of war; the science is where am I?...[With FBCB2] you always know where you are...it allows the units on the ground to focus on the art of war" (U.S.-09).

U.S. officers mentioned the benefits of trackers specifically knowing the locations of adjacent units (U.S.-05; U.S.-21), the increased ability to coordinate and collaborate (U.S.-08; U.S.-14), and the increased speed of operations (U.S.-08; U.S.-09). U.S. officers stated that FBCB2 made units "three times more lethal" (U.S.-20) and prevented fratricide (U.S.-15; U.S.-20). Few officers saw trackers as a reduction in their autonomy. Instead, as they were able to use this technology to gain previously hidden information about themselves and others (the location and identification of adjacent, superior and subordinate units), trackers were largely seen as a net benefit.

Trackers were generally seen by U.S. officers as decreasing transaction costs in terms of the amount of time needed to discover where their subordinates where:

> "As a company commander, [FBCB2] gave me a lot of flexibility…I could look at the FBCB2, get a general idea of where [my subordinates] were or what the situation was…Once I got [subordinates] to give me a report, then I could just sit back and watch" (U.S.-03).

> "I was willing to take a lot more risks with the [FBCB2]. I could be a little more hands off. I could see what [subordinates] were doing…I could conduct multiple missions simultaneously. You asked less, but more pointed questions" (U.S.-21).

An officer reported an increased dependency on this technology over time:

> "During the first deployment it didn't really have that much of an impact other than I could visually see where the soldiers were on FBCB2…And the

second deployment, without [FBCB2] the job that I was doing…would have been almost impossible" (U.S.-16).

Costs of trackers

As expected, a transaction cost was associated with the time needed to train and maintain these new technologies:

"In the kids nowadays, they're not really as good at the basics, but they can operate the FBCB2 and all that other computer stuff a hell of a lot better than I can. But they can't tell you how to lead in an ambush.(U.S.-06).

"My lieutenant would sit there and stare at [FBCB2] as opposed to looking at the environment. I wanted my leaders to be able to lead, and not lead from a computer screen…they were staring at the screen and watching icons move around like a Nintendo…they could have had an insurgent walk up on them with a pistol but they'd still be staring at the screen" (U.S.-10).

"So we had [FBCB2] in the vehicles but we couldn't get the support to keep them running or keep them operational, or teach anybody to use them or anything. So in reality they were electronic lumps in the middle of the [vehicle]" (U.S.-10).

"No one was trained on [FBCB2]. One day some tech guys showed up and said this is a box and here is this screen" (U.S.-18).

Only one U.S. officer mentioned an anecdote that indicated trackers were used by superiors to control subordinates:

"We were on a checkpoint once…and a convoy had been hit. Some of the convoy had come to our checkpoint and said hey, we need assistance…I just gave a word to my soldiers to go…Within a minute [of moving 3UP] called. 'Why are your men moving from the checkpoint? [I said] I've got people in contact I'm trying to move to them and assist. They said no, you will not. Move back to your checkpoint…I wanted to [unplug my FBCB2]…a couple of my [senior enlisted soldiers] were just going to do the whole F you thing and go….it was very frustrating" (U.S.-10).

Summary

As expected, trackers dramatically reduced the costs associated with superiors knowing where their subordinates are. Trackers were not seen by subordinates as an overbearing amount of control. That a subordinate would accept any additional surveillance and observation may seem puzzling to some. Why trackers were accepted seemed to be related to the additional information provided to the subordinate that was being tracked (e.g. when the subordinate could 'see' adjacent units), while reducing the costs of reporting information on location and position. As FBCB2 was installed, viewed and controlled at the lower officer levels, this technology provided an enormous benefit, and additional information, at little to

no cost. Only one officer saw a superior's monitoring of a tracker as negatively hindering his autonomy. The costs were dramatically different when the officers spoke of drones.

5.3.2 Drones

A drone is a tool that enables a superior to actively monitor and record a subordinate's actions. In Iraq, the use of drones is best represented by the UAV. The UAV is a remotely piloted aircraft and can be used for reconnaissance and, when armed, attack missions. UAVs are equipped with an array of cameras and sensors that can record live footage and transmit this through satellite communications to remote video terminals.

Figure 5.4 Predator drone firing missile[50]

From 2003 to 2008, the use of U.S. UAVs in Iraq increased across a wide variety of measures (e.g. number of airframes, amount of video recorded, number of hours flown).[51] This

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[50] *Source (Anonymous, 2011).*
[51] From October 2001 to October 2006, UAVs flew over 400,000 flight hours in support of operations in Iraq and Afghanistan (U.S. Department of Defense, 2007b); in the first 10 months of 2007, UAVs logged almost as many hours as the first five years (300,000 flight hours)(Drew, 2010). The number of UAVs in combat rose from 1000 in 2006 to 1350 by the end of 2007 (Osborn). 2007 also saw a fivefold increase in the number of video terminals that could display real-time image feeds from UAVs . Overall, since 9/11, the amount of intelligence gathered by UAVs and other sensors rose over 1,600 percent (Shanker & Richtel, 2011). UAVs also increased in the amount of quantity of information that each airframe captured. In the winter of 2010-2011, the Air Force's deployed Gorgon Stare, a drone that can send up to 65 different images to different observers, with which, the general in charge of implementing this new sensor stated, "we can see everything" (Whitlock, 2011).

increase was reflected in the surveyed officer responses. Less than 50% of the officers that deployed between 2003-2005 had access to UAVs ("I never had UAV support [in 2004]" (U.S.-03)). Yet in the 2006-2008 period, not only were these mid-level officers increasingly watched by superiors, they could watch their subordinates, "[In 2006]…we always had an [UAV](U.S.-03), "We could watch all [subordinate operations]" (U.S.-01; U.S.-07), "100% of operations were monitored by UAVs…we had about six or seven huge plasmas" (U.S.-18). Figure 5.4 shows a sample screen shot; images like these were often projected or shown in U.S. Army command posts throughout Iraq.

Figure 5.5 Sample screen shot from a UAV video terminal[52]

Like the tracker technology gap, the British Army fielded UAVs later, in smaller numbers, at lower quality.[53] Upon the invasion, the U.K.'s sole operational and unarmed UAV, was described by the U.K.'s Ministry of Defence as "not one, but several generations behind [U.S. UAVs]" (U.K. Parliament Defence Committee, 2003, pp. para 111, p. 141). A U.K. officer confirmed this, "It's like watching a black and white TV in the 1920s" (U.K.-19). As one U.K. officer noted, "They [UAVs] were new to us. They were not new to [the U.S.]" (U.K.-25).

This line of questioning sought to capture the diversity of perspectives concerning the use of these tools in Iraq—some had them, some didn't, some used them to watch others, some

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[52] *Source (Anonymous, 2003).*
[53] Like the FBCB2, the British Army purchased American equipment to fill the gap, purchasing two UAVs in 2006. This external need was slated to be replaced by the U.K.'s own UAV, the Watchkeeper. In July 2002, the Ministry of Defence added £50 million to move its service date forward by two years (to 2005) (U.K. Parliament Defence Committee, 2003, pp. para 109, p. 140). Beset with delays, the Watchkeeper entered limited service in 2011.

were watched. Those that were in company command positions provided perspectives of those being watched. Those who served in battalion and higher staff positions provided perspectives of those doing the watching. Many of the officers that served multiple deployments provided a perspective on the gradual increase of drones, and also often provided the perspective of both watcher and watched. The costs and benefits for these two broadly defined groups differed considerably.

Benefits of drones

For those watching, drones were thought to provide a large tactical advantage over the enemy. Officers spoke of how drones allowed them to react in greater speed (U.S.-18), increasing situational awareness (U.K.-14), "add[ing] significant tactical value" to subordinates (U.K.-29), all while reducing the costs of knowing what subordinates were doing (U.S.-17).

> "[Drones provide] a very useful way of watching what was going on, on the ground…If something happened we were able to react quicker [when watching a UAV]" (U.K.-19).

Being able to watch the feed seemed directly correlated to whether drones were perceived in a positive light. U.S. Army officers that had access to the feed described drones in positive terms running from mild praise "nice to have" (U.S.-15), to glowing praise, "invaluable clearly…the idea behind them is proven and sound" (U.S.-01), "an awesome asset" (U.S.-06). Some British Army officers noted the influence of UAVs on operations: "Markedly" (U.K.-25), "Fantastic. A real battle winner" (U.K.-7).

Drones allowed superiors a new perspective of subordinate activity. Officers of both armies reported the real-time images from drones were broadly accessible, from large plasma screens mounted in command posts (U.S.-11) ("Pretty much everyone that could get into the TOC [tactical operations centre] was watching it…There were probably about routinely forty people in there" (U.K.-7)), to small windows that could be pulled up on personal computers (U.K.-30). The drone feeds could be "watched back in the U.K." (U.K.-14) and "the Pentagon" (U.K.-31). Observed officers who could also see the feeds and control the drones were more likely to see drones as positive (U.S.-01; U.S.-03; U.S.-06; U.S.-09).

Costs of drones

Overwhelmingly, both U.S. and British officers that were watched spoke of the costs, and they did so with much more passion and verve than when they spoke of trackers. Officers that could not watch the feeds, but knew superiors could, used derisive terms for drone

technology, "Kill TV" (U.K.-22; U.S.-01), "military pornography" (U.K.-7), "field grade[54] TV" (U.S.-21) and "voyeurism" (U.S.-02). When the feed was retained at a higher headquarters and not pushed to the unit on the ground, drones were generally resented (U.S.-05; U.S.-15; U.S.-20)

> "[His superior] was monitoring everything on the video feed, and so basically controlling him. And what made my buddy really mad was that he had requested UAV support prior to the mission so that they could look at the target and [his superior] denied it" (U.S.-11).

Monitored subordinates are seen to more closely conform to the superior's standards yet also be second guessed in their actions (Aiello, 1993). With one exception (U.K.-25), officers of both armies resented being watched and second guessed by distant officers:

> "It isn't good seeing the general staff trying to fight a war through TV screen" (U.K.-28).

> "It got to where [superiors] didn't believe us. [Superiors] saw it from a UAV at 3000 feet, sitting back in the FOB…I know better than…a view from 3000 feet…the [1UP] had a hard time believing us because of what they had seen on the UAV" (U.S.-21).

> "[When] we got back in, the [2UP] spoke to the [1UP] and said, 'Hm. I noticed that some of your troops weren't taking up some decent fire positions.'…I think it engenders a bit of them and us. Those who are out there are putting their asses in the wind. I didn't appreciate [superiors] watching Kill TV" (U.K.-7).

> "[1UP] began telling him where to assault, where to go…He found it insane to go in and assault right close to that target right after they had already been in there just because [1UP] saw something on the UAV feed" (U.S.-11).

Unlike trackers, which seemed to reduce information requests from superiors, watched officers noted that the presence of drones increased questions from above:

> "In the past as long as I was clearing the objective, that was all I would report up. [Now] if [superiors] saw us slow down [on the drone feed] that would trigger questions from higher" (U.S.-21).

> "[T]he monitoring of the UAV feed led to a desire to get information as quickly as possible… what you had was a lot of people at different levels busy responding to a request that came from something that someone saw on the video feed instead of being able to do their job" (U.S.-11).

Subordinate officers saw in superiors an "immaturity of experience" (U.K.-7) with the use of drones contributing to this increased control "they don't use them enough in training to kind of fully explore to get the most out of it" (U.S.-06).

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[54] 'Field grade' refers to officers of the rank of major and lieutenant colonel, mid-level officers and usually the direct superiors to the interviewed officers.

Summary

Drones that allowed superiors to know what their subordinates were doing were seen as much more disruptive than trackers. Drones do not simply transmit information known to subordinates. By providing a different perspective, these technologies provided superiors information unknown to subordinates, partially reversing information asymmetry. Drones present huge temptations for superiors to control and direct subordinate activities. However, there did seem to be a gradual learning over time; more drones do not necessarily correlate directly to more nanomanagement. Two officers, one U.S. and one British, with extensive UAV support on a second deployment and little to no access to drones on the first captured how the costs and benefits of drones changed over time:

> "In the first deployment [2004], there was no UAV capability. All of the situations that developed at that stage were really by voice with the inherent sort of interpretation and misinterpretation of the situation"

> "During the [second] tour, a number of additional UAV systems came online…such that we had twenty-four hour coverage day and night…in the brigade headquarters fed onto several screens…we had more situational awareness than the commanders on the ground…We were able to see a lot more from a bird's eye view to actually give [the on ground commander] tactical information that helped him go about his business as the brigade headquarters saw it. Which seems to be strange, but at the same time was absolutely the right thing to do…We were able to see in the brigade headquarters a lot more of the enemy's dispositions and his firing positions, and we could assess what his intent was a lot better than the radio traffic suggested that the tactical commander on the ground was able to achieve…we exerted almost a tactical control over that situation…from twenty kilometres [away]" (U.K.-29).

> "We had very little UAV support in 2003 and 2004. The asset stayed at the brigade…the company never got the direct feed…the [brigade] didn't know how to use it…we used to call it Field Grade TV. The brigade commander on down would be watching a fire team move around and all throwing down their two cents…what the squad needed became secondary to what those watching wanted to know. It became a hindrance more than a help"

> "In 2003 [drones were] still new…I just think that now everyone has heard the horror stories of the general controlling the fire fight. They don't want to be that guy anymore. They are a lot more patient…The first couple times I had direct UAV feed I was very inquisitive and micromanaging. As I got used to it I realized that stuff happens".

> "[On the second deployment (2007-2008)] I had [UAV feed] down at the company level…We had direct line communications with the UAV pilots. We had control and could tell them what sort of shot we needed. We could push it down…Everyone now understands the dangers associated with UAVs…The guys in the CP [command post] finally understood how confusing it is on the ground. Battalion and brigade would watch it but were very hands off. There

was not any second guessing or questioning. As an army we are more mature with working with those assets. Everyone has seen a UAV feed and 90% have been on the ground. As an army matured the technology matured" (U.S.-21).

5.3.3   Long screwdrivers

A long screwdriver is a tool that allows a superior to request increasing quantity and quality of information at greater speed, and to direct action at a distance and speed previously impossible. During the period of study, a suite of tools increasingly connected the highest command to the lowest levels. These tools could be relatively cheap and simple adaptations of civilian technology (e.g. the expansion of cell phone networks, shared drives and video conferencing) or incredibly complex and expensive (e.g. secure satellite communication systems, secure data infrastructure). Whether cheap or expensive, simple or complex, between 2003 and 2008 in both armies the amount of connectivity between highest superior and the lowest subordinate exploded (Farrell, 2008).

For example, in Iraq the U.S. Army fielded the Command Post of the Future (CPOF), an "executive level decision support system" that consists of thousands of networked terminals each with no less than three monitors (General Dynamics, 2008). This technology incorporates tracking and communication functions of FBCB2, allows further connectivity through secure voice, chat and email functions; and includes a state-of-the-art collaborative planning function. Systems such as CPOF were mere prototypes at the outset of the Iraq war; bandwidth did not exist to support such as system. By 2008, as bandwidth expanded, over 1,200 of these systems were manned constantly in headquarters ranging from battalion to corps (General Dynamics, 2008).   Figure 5.6 shows the three monitor CPOF system in use.

Figure 5.6 The Command Post of the Future[55]

The increase of communication and contacts between superiors and subordinates proved difficult to precisely quantify. Therefore during the interviews, I asked officers to characterize the amount of time, by medium, spent communicating with superiors and subordinates.

Officers that deployed in the first years of the study (2003-2004) often said they did not have access to email, and noted a lack of available technology. They communicated with superiors in medium and method as subordinates had for centuries—face-to-face and hand written orders (U.K.-5; U.K.-19; U.K.-29; U.S.-10):

> "It was all verbal orders…Our e-mail system didn't work...in the summer, the computer system would not work in the mid-day" (U.K.-5).

> "We had two computers in the battalion…pretty amazing to think that it was 2003 and we had two official army-issued computers" (U.K.-9).

> "[We] used a large amount of pen and paper…It was beneficial in some ways, so it made things simpler" (U.K.-12).

> "There was no e-mail system that was usable at that time [in 2004]" (U.K.-29).

> "[On the first deployment] comms with higher was almost non-existent" (U.S.-13).

When asked, a few officers reported that information demands stayed constant (U.S.-01) (U.K.-25; U.K.-27; U.S.-05):

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[55] *Source (A. Walker, 2009).*

> "I would say [information requirements] stayed constant throughout. After getting over the initial shock of arriving in country and figuring out what everybody wanted, it stayed pretty constant" (U.S.-17).

Yet the vast majority (47/52) reported increased quantity of information demands "way up" (U.S.-08), "absolutely gone up" (U.S.-09), "The information demands have gone up exponentially" (U.S.-21).

> "[On the first deployment] you don't have to provide as much information. When things were that fluid and that busy, and the information systems weren't there…the only thing you can really do is pass up the most crucial information. [On the second deployment] when we were…all plugged into computers in offices…the amount of information that's demanded…increases quite a lot" (U.K.-12).

Officers that deployed in the later years of the study (2005-2008) remarked on the amount of time spent communicating with superiors and subordinates: "All day…I was probably in front of a computer for fourteen hours if I wasn't doing PT [physical training] or eating" (U.S.-11), "eight to nine hours a day" (U.K.-19), "three to five hours at least just managing the e-mail traffic" (U.S.-07). The change was further highlighted by those officers with multiple deployments:

> "By the time I got back there for my second deployment, what didn't we have?...We had the ability to send files and push data through the satellite. We were connected and it was required that we had four ways to communicate both through data and voice" (U.S.-18).

> "Second time was a bit more formal…a lot more e-mail especially upwards" (U.K.-12).

> "[On the second tour] it was almost like a completely different army…it was not anything like I had done before in terms of [command and control] and in terms of the technology that was then there to support it" (U.K.-14).

> "On the second tour…I think just the ability to speak and speak securely and see what was going on…to a level of precision that we just couldn't have done before [had a] profound, huge impact" (U.K.-29).

While both groups of officers noted increases, British Army officers observed the stark difference between the amounts of technology fielded by the U.S. versus the British Army:

> "Compared to the U.S., the U.K. is in the Dark Ages…The problem we have as Brits is that we don't have technology that lets us talk to each other. We have one computer here and there. The Brits' problem is money" (U.K.-1).

> "We were lagging something like twenty, perhaps thirty years behind [the U.S.]" (U.K.-29).

> "My experience in American headquarters was they were…given much higher information flow…So initially the British would produce reports somewhere a third or a quarter size of a U.S. report. But the U.K.

headquarters would start to get into a routine…about wanting more information" (U.K.-24).

Benefits of long screwdrivers

Officers in superior roles noted long screwdriver technologies increased their control of subordinates (U.S.-20), allowing superiors to react faster (U.S.-08), and cut down on face-to-face meetings (U.K.-19; U.K.-24; U.S.-07; U.S.-08; U.S.-20):

> "I have found [more long screwdriver technology] has helped…it provides more information and allows you to make a more informed decision" (U.K.-28).

Technology that did not exist during the invasion, were later thought to be mission critical. Yet even those that lauded the benefits identified the potential costs:

> "Iraq would not work without electronic communications. The distances are too great; the amount of information being thrown around is too great for it just to be done in the old way. Does that make it better then? It certainly makes it faster. It certainly makes critical information that's passed around much quicker and much more all-informed. But information generates information, and it's very difficult now to get the critical pieces of information identified in amongst so much data…a needle in a haystack if you're not careful" (U.K.-31).

Costs of long screwdrivers

Officers in both armies noted that as more information could be demanded, this allowed superiors greater control, at the cost to subordinate autonomy:

> "[During the invasion]…I had very little ability to exert any command influence over [my subordinates] once they deployed. On the second tour, with data connectivity almost accepted as part of life… [I had] the ability to exert long screwdriver influence over a lot more that was going on. I was certainly a lot more able to do that, and therefore felt probably a lot more inclined to do so frankly" (U.K.-29).

> "If something happened…everyone would automatically know [through long screwdrivers] that something had happened…we lost a little bit of our own freedom in that situation" (U.K.-2).

> "There was a bit of long handled screwdriver going on…it was pretty locked down" (U.K.-14).

Others noted how long screwdrivers that reduced the amount of face-to-face time produced sub-optimal outcomes:

> "A lot of the stuff that we did was very old-school, and I liked it that way…Too much electronics stuff added more work...you have to sit down at this computer and type it out, where if you just walked up to somebody and say it face-to-face it's that much easier" (U.S.-10).

"One of the [generals] had what we called a long screwdriver. We can't have a one star with a long screwdriver in his hands. It goes completely against mission command" (U.K.-1).

Where trackers were seen as generally reducing costs and a drone's cost depended on whether the respondent was the watcher or the one being watched, long screwdrivers were almost universally seen as costly. Officers of both armies noted the steady increase of reporting requirements, detail and time demands:

"We could do something more productive" (U.K.-16).

"[Superiors] were constantly asking you for information…there is a big cost to that" (U.S.-09)

"All this reporting is wasting energy" (U.S.-12).

"[Increased reporting] ate into my planning time" (U.S.-20).

The increasing amount of time needed to satisfy the quantity, quality and speed of superior's information requests produced transaction costs, especially the opportunity costs of other activities sacrificed in order to meet information demands. Officers recognized that ultimately action was often the cost of reporting more information at greater speeds:

"You can either report or do, and all too often we waste time reporting instead of doing" (U.S.-12).

"After we got a task, we would get tons of questions [from 2UP], 'Have you done it yet?' Well if you stop asking me, maybe I could" (U.K.-1).

"If they're taking a phone call from [1UP], they're not able to monitor [their subordinates]…taking them away from the job that they were supposed to do at that exact moment in time...just to feed the beast above them that was demanding information" (U.S.-11).

Like trackers and drones, mid-level officers did refer to a gradual learning and development of a logic of appropriate use. As templates, times of meetings, formats of reports were established, costs began to stabilize, but a dependency on these long screwdriver technologies increased:

"Once I got into the swing of what [superiors] wanted, it was okay. I got a template...I would be printing out the PowerPoint slides and handing them into my [subordinates] and going okay, here's the order…So people became very dependent on computers and PowerPoint...It just seemed like a giant mass of computers. Everybody was just sending e-mails everywhere…[but] if one computer went down, offices shut down. So if you lost your [secure internet], forget it. I mean I'm not even going to come into work today. Everybody became so reliant on the computers" (U.S.-10).

Costs of increased quantity of information demanded

Both U.S. and U.K. officers spoke of the requirement to provide ever more reports to superiors to "feed the beast" (U.K.-8; U.S.-02; U.S.-15) or "feed the monster" (U.S.-21):

> "When you open a pipe particularly from higher headquarters it expects more from you at that point" (U.S.-15).

> "It's a natural tendency for my superiors…to want as much information…to have an insatiable appetite" (U.S.-07).

> "I think sometimes [increased information] may create more questions…which kind of can double the work a little bit because now [superiors] have another question, and they think you should give them another piece of information" (U.S.-03).

> "[With technology] we just have to know when enough is enough" (U.S.-06).

Officers reported that too much information was often the result of long screwdrivers:

> "[T]here is a by-product of having too much information. It isn't really necessary for all decisions. It has created an atmosphere of demanding information over knowledge" (U.S.-09).

> "I think information does not equal intelligence. I think it gets to a point where there's too much information and not all of that can be processed. I don't think [superiors] need to know every time a bullet is fired by every individual soldier. That's what you have subordinate leaders for" (U.S.-06).

As mid-level officers were expected to respond to information demands from multiple levels of command, both U.S. and British officers reported requests became redundant (U.K.-12), with superiors seeking information on "[S]illy things" (U.K.-5), "[T]rivial issues" (U.K.-18), "that really have nothing to do with war fighting" (U.S.-06; U.S.-07),

> "More requirements came with better tech and I wouldn't say it was pertinent info" (U.S.-20).

> "[I had to deal with] the random requests you would get from [superiors] asking you how many left-handed squash players you've got" (U.K.-19).

> "There was a tendency...for fairly senior-level officers to want to know real detail…For example, when we went out…how many lunch meals we would take" (U.K.-15).

> "Sometimes [the commander] could get into real detail. Where's this specific convoy? You know, convoy 101?" (U.S.-14).

> "It is ridiculous. People would ask, 'Why can't you answer how many guys are from the state of Indiana?'" (U.S.-21).

> "We are getting to information overload…We have to get a hard look at these systems. Who will use the information? Who needs it? At some point we have to quit asking stupid ass questions like 'What if a meteor comes down?'" (U.S.-21).

While superiors requesting information that subordinates perceive as irrelevant surely pre-dates the adoption of long screwdriver technologies, these technologies provide more opportunity for such requests. Superiors will request more information when they can request more information (Storr, 2002; James Wilson, 2000):

> "[Superiors requested more information] because we can. There's an opportunity to do it, therefore there is a knee-jerk reaction to do that. There's not necessarily the judgement taken whether the information required is absolutely vital, or whether you can get it from somewhere else" (U.K.-12).

> "[Superiors requested more information] because the information was out there" (U.S.-17).

> "It's so easy to push the send button and think afterwards [instead of] do the thinking first, and then action" (U.K.-31).

Costs of increased quality of information demanded

As long screwdriver technologies increased the amount of data that could be transmitted between subordinate and superior, reports also grew in length (U.K.-23) and the time needed to complete expanded, sometimes requiring "days" (U.K.-18; U.K.-19):

> "[to complete required reports I worked] 48 hours straight…it was way too much information" (U.S.-20).

> "The requirements [for after action reports] grew. First a Word document, then PowerPoint, then pictures, then tables…I wonder where and when it will stop...We are fast coming to a human limit to how much we can do" (U.K.-12).

> "We used to conduct battalion level missions on one page documents…Now, I need to do an eight page order for a company level operation…Now it is who can produce the biggest, baddest, quickest, most thorough CONOP [concept of the operation].[56] CONOPS are no longer concepts, they are full blown" (U.S.-21).

Officers described orders growing to be "thicker than the D-Day landing report" (U.K.-31) and elaborate PowerPoint presentations (U.S.-10) of "about a hundred slides" (U.S.-14). One officer captured how the demand for quality of information increased between and within deployments:

> "In the beginning…the only thing we had to do was a daily, one page SITREP [situation report that stated] last 24 [hours], next 24, any planned ops...[We had] zero requirements for CONOPs the first time. The second deployment started out with a six page CONOP, then it went to a 22 page…It got very difficult…It is the same as if you are carrying a ruck sack. If you make the ruck sack bigger, you put more things in it. As we made the

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[56] A CONOP is a written summary of an operation.

[communications] system better, the [information] requirements increase" (U.S.-20).

An officer with five deployments noted on his last deployment hints of push back, a trend to capture information on one page for quicker processing:

> "The information in a CONOP grew almost cumbersome. That was probably a result of all the information we had access to. I am not sure we needed to include all of it in a CONOP up to higher. [On the last deployment] they started to trim the fat on those products…it used to be three pages; then we put it all on one" (U.S.-18).

Costs of increased speed of information demand

While superiors were requesting increasing quantity and quality of information, numerous officers reported the information was demanded in increasing speed (U.K.-24) such that "there was an incredible pressure to get reports in" (U.S.-15). Reports were demanded "as soon as possible" (U.S.-12), "before the unit is even back" (U.S.-11), resulting in "no edit process to the reports anymore" (U.S.-03).

> "In 2004 it was a lot more relaxed environment because there wasn't [sic] all these systems to push information up higher…I could have 24 or 48 hours to get [a report] done and get it up. On the second [deployment] it was just like four or six hours" (U.S.-03).

> "With this tech proliferation you can no longer say 'I have to get back to you'" (U.S.-21).

> "No the last thing you want is the [2UP] commander knocking on the [1UP] commander's door saying sorry to hear that you've lost a soldier tonight, and [have 1UP] say 'come again?' So that could obviously never be allowed to happen" (U.K.-29).

> "And in my readings of the counterinsurgency doctrine, some of the tenets are reduce reporting to a minimum. [We] absolutely do not believe in that concept. [We] want instantaneous knowledge of everything" (U.S.-12).

During operations, the pressure to report information was constant:

> "And while the comms weren't always reliable, the pressure from above was. Every pause, every security halt…'Give us a SITREP. What did you see on the objective?'" (U.S.-18).

> "In fact my driver had to start walking with a radio on his back…because I would get harangued so much from higher for constant feeds of information" (U.S.-10).

When activity, casualties or major operations were occurring, the interest from superiors increased (U.S.-06):

> "When [superiors] heard small arms fire on the radio, that's when higher really got on the radio" (U.S.-15).

> "We would get ridiculous questions while the ops were going on. [After a soldier was shot superiors] wanted to know immediately what shoulder he was hit on, a minute after he was shot. Who the fuck cares which shoulder he was hit on?" (U.S.-21).

Officers recognized that when the time frame in which information was demanded decreased, accuracy was often sacrificed:

> "The first reports were always wrong" (U.K.-28).

> "[2UP] was more concerned about us reporting to them in a timely manner than what we actually reported" (U.S.-19).

> "Because the first report is never correct…There's no longer an opportunity to call back and say really? Is that what you saw? Really? Because the second somebody [reports]…everybody is looking" (U.S.-03).

> "[Superiors] know they're going to get hounded by the next higher commander for the information now...I mean from the President on down, they have got to accept delay" (U.S.-12).

Summary

> "Quite often there was a bit of a long handled screwdriver effect" (U.K.-18).

Long screwdrivers are tools that allow a superior to request increasing quantity and quality of information at greater speed, and to direct action at a distance and speed previously impossible. Long screwdrivers will likely be accepted by superiors, as they reduce transaction costs while increasing control. As anticipated, subordinates resisted long screwdrivers as they increased their transaction costs while reducing their autonomy. Combined with trackers and drones, long screwdrivers can greatly reduce subordinate autonomy.

After adoption of trackers and drones, organizations often reverted to previous practices. Not so with long screwdrivers. The most powerful disruptions create a qualitative change in practices, where new permanent practices persist and are normalized. One U.S. officer's words captured the permanent changes that long screwdriver technologies brought:

> "[In 2003] when we first got there, there was [sic] no computers or anything. Only the headquarters had computers that were operational, however we didn't. We didn't even have electricity at first. So they were demanding copies of my orders and copies of my PowerPoint slides. I would say I don't have those, they don't exist"

> "I got the impression that [superiors] were trying to push electricity and Internet to us not necessarily for ease of manoeuvre or because we could more easily do our operations…But it was more so they could get something that they could send higher"

"[Technology] definitely slowed things down. We were used to drawing our graphics on the side-skirt of a tank in chalk and going okay…this is where we're going. Then it turned into I would get from higher these PowerPoint slides that need to be in this font, they need to be in this format. And I'm like, hey, I'm actually going out on the ground and kicking a door in. I really don't care if it's in eleven Courier New font because that's what [3UP] was requesting" (U.S.-10).

5.4   Conclusion

This chapter has argued that modern technology has dramatically altered traditional forms of *ex post* control. Superiors may now use sub-categories of police patrols—trackers, drones, and long screwdrivers—that decrease the superior's transaction costs of monitoring. These sub-categories of *ex post* control fundamentally alter the transaction costs for both superiors and subordinates, moving towards greater superior control and less subordinate autonomy. An effect of nanomanagement is that it makes police patrols more preferable in relation to fire alarms. Table 5.1 assesses these costs and benefits.

	Effect on superior's transaction costs	Effect on superior's control	Effect on subordinate's transaction costs	Effect on subordinate's autonomy
Trackers *a tool that automatically communicates information about subordinates to superiors, at little to no cost to the subordinate*	**Decreases** Superiors automatically know subordinate's location	**Increases** Increases ability to detect subordinate shirking	**Decreases** No longer must report their location Little to no cost	**Decreases** Subordinate's location known to superiors Ability to shirk reduced
Drones *a tool that enables a superior to actively monitor and record a subordinate's actions*	**Decreases** Superiors now know what subordinates are currently doing	**Increases** Reverse or reduce information asymmetry Superiors exert tighter control Increased ability to detect shirking	**Decreases** Subordinates no longer must report what they are doing	**Decreases** Reversed information asymmetry possible Activity now known to superiors Reduced ability to shirk
Long screwdrivers *a tool that allows a superior to request increasing quantity and quality of information at greater speed, and to direct action at a distance and speed previously impossible*	**Decreases** Superiors now request previously unavailable information at greater quantities, at greater qualities, at greater speed Some increased data processing costs	**Increases** Increased information allows superiors to know whether tasks are being completed to standard Increases their ability to detect shirking	**Increases** Must now report in greater detail, at greater speeds Time spent answering these increasing demands is time spent away from assigned task	**Decreases** Reports reduce the discretionary space, autonomy

Table 5.1 Nanomanagement with trackers, drones and long screwdrivers

Each of these sub-categories increase superior control, clarifying where their subordinates currently are, what their subordinates are currently doing and whether their subordinates are accomplishing the delegated task to the standard prescribed. Each of these sub-categories also decrease the transaction costs of superiors, reducing the cost of obtaining information and in some cases allowing superiors to obtain previously unobtainable information. With greater control at less cost, superiors will purchase, field and employ these technologies. Cost should be considered a cause of nanomanagement.

As these tools decrease a superior's transaction costs, they may shift a superior's preference away from *ex ante* controls toward *ex post* control. Why spend so much in training, vetting and screening subordinates when trackers allow a superior to know where their subordinates are and drones allow them to see what their subordinates are doing? Why spend time writing detailed orders, when long screwdrivers allow a superior to tweak and adjust their subordinates on the fly? As Chapter 4 discussed, this effect of nanomanagement—by making *ex post* controls more preferable than *ex ante* controls—may be a threat to professionals.

Nanomanagement makes police patrols more preferable in relation to fire alarms. The traditional choice between police patrols and fire alarms largely focuses on the influence on the superior's transaction costs. For the superior, trackers, drones and long screwdrivers can be seen as modern police patrols, where the superior expends resources in monitoring, yet each pose less transaction costs for the superior than traditional police patrols. Each offer the superior access to heretofore unavailable information, at greater distance, in real-time, at greater detail.

For the subordinate, trackers and drones also may be net beneficial; yet long screwdrivers increased their transaction costs. Subordinates may resist the implementation of long screwdrivers, but tolerate trackers and drones from a costs calculation. However, all three sub-categories decrease the autonomy that subordinates cherish. The subordinate feels the effects on lost autonomy *simply as a result of these tools existing*, *regardless of whether they are actually monitored at that moment*. As subordinates know that their actions *can* be tracked, know that drones *can* relay information, their autonomy is reduced.

I did not find a difference between the U.S. and British armies in the use of these tools. Once superiors of either army had access to these tools and had the possibility of nanomanaging, they nanomanaged. Despite differences in beliefs of autonomy (Chapter 3), specifically the emphasis on mission command, British officers reported these tools were employed by their superiors, once available, to the same and sometimes to a greater degree than U.S. officers. Despite being members of a profession, and by extension assumed to be trusted, these tools allowed superiors to track, monitor and control subordinate behaviour.

Does the increasing adoption of these tools predict ever more exacting and increasing control of subordinates by superiors? The evidence suggests not. Instead, technology adoption seems to go through an evolution. When initially fielded and adopted, without training or procedures, these tools seem to be employed by superiors to exert greater

control at the expense of subordinate autonomy. Yet as superiors spent more time using these tools, recognizing their benefits but also their costs, they learned to not always nanomanage and always exert tighter control.

Each of these technologies, on their own, can be seen in organizations of the past. Yet it is widespread adoption and integrative power of these technologies that produces profound effects on superior-subordinate relationships today. While superiors are empowered and subordinates disempowered are the effects of these shifts of power felt the same throughout an organization? Having discussed *ex post* and *ex ante* controls, the next chapter explores how these technologies influence organizational structures and actors at various positions in the hierarchy.

CHAPTER 6 **Organizational structure**

The previous chapters' discussion of *ex ante* and *ex post* controls assessed how superiors seek to control subordinates irrespective of their position within an organization's hierarchical structure. Yet not all superior-subordinate relationships are the same. This chapter examines how nanomanagement influences superiors and subordinates depending on where they sit within an organization's hierarchy.

In the last century, organizations increasingly formed larger, more hierarchical forms. These organizational forms enable hierarchical control: a rigid and clear path for information to flow from the bottom to the top of an organization; limits the number of subordinates a superior may control; and establishes a clear and accountable chain of command (Weber, et al., 1947). An actor's position within the organizational structure—from upper-level executives, to mid-level managers and low-level operators—conditions an actor's roles, incentives, responsibilities and interactions with superiors and subordinates (James Wilson, 2000).

As technologies were introduced that allowed the most senior executives to control the most junior operators, hierarchical control was disrupted. Many organizations abandoned their rigid hierarchies for other organizational forms that allow information to flow freely, spans of control to expand, and command chains to blur. Further, these technologies allow a flattening of traditional hierarchies by eliminating the need for entire levels of mid-level managers (Heclo, 1978; Thorelli, 1986).

Yet not all organizations that adopt these new technologies adopt new organizational forms. In the past twenty years, the U.S. and British armies adopted information-age technologies while retaining their industrial-age hierarchies. This chapter assesses the tension between adopting two year old technology within two hundred year old organizational structure. When hierarchical structure is retained yet technologies that undermine hierarchies are adopted, how are superior-subordinate relationships influenced? What is the effect of nanomanagement on upper, mid and low-level actors?

The *ex post* controls introduced in Chapter 5 increase superior control while decreasing subordinate autonomy. As superior control increases, a superior's options for action expand. Prior to the adoption of contemporary technologies, the superior's options for action were largely limited to determining the degree of *ex post* monitoring (e.g. should they monitor their subordinates heavily, lightly or not at all?) while their subordinates could choose

between working and shirking. Today's technology allows superiors additional *ex post* control options: they may choose *shifting*, directing their attention at subordinate organizational levels; they may choose *drifting*, acting at subordinate organizational levels; and they may choose *grifting*, cheating the hierarchy by controlling actions at levels beneath their immediate subordinates. In this chapter, I argue that superiors *shifting*, *drifting*, and *grifting* are effects of nanomanagement.

Executives *shifting* and *drifting* reduce a manager's autonomy. Yet it is executive *grifting* that fundamentally alters a manager's relationship to both superiors and subordinates. This chapter proposes that technology allows for a new type of control of mid-level managers. Instead of seeking to control through selection, training and screening (*ex ante*) or through monitoring (*ex post*), nanomanagement enables what I term a control by exclusion (*ex claudere*). When information technologies are adopted yet policy or tradition requires that mid-level managers be retained, executives may functionally eliminate these managers by communicating, monitoring and directing action at the operator level. This retention yet exclusion, is another effect of nanomanagement on superior-subordinate relationships.

For the operator under the direct observation and control of distant executives, they now suffer from the increased quantity, quality and speed of information demanded discussed in Chapter 5. However, operators may also access a wealth of previously unavailable information and higher level guidance. Where a traditional hierarchy allowed only one superior to direct an operator's action, now an operator can receive input from multiple actors in the chain of command above them—their boss, their boss's boss, their boss's boss's boss. When these least experienced operators now access the same information that previously only managers and executives knew, does this create overload or empowerment?

In assessing how nanomanagement influences superior-subordinate relationships, this chapter argues that influence depends on which superior-subordinate relationships, within a hierarchy, are being analysed. Section 6.1 will explore organizational structure as a form of control, specifically hierarchical control characterized by structured information flow, limits to span of control and the establishment of a clear chain of command; this section will then explore how technology disrupts hierarchical control. Next, Section 6.2 examines how nanomanagement influences the executive, manager and operator levels of the hierarchy. A case study of the exodus of mid-level officers in the U.S. Army will be offered to explain what I term the cycle of nanomanagement. Section 6.3 will then offer empirical evidence organized from the executive, manager and operator perspectives. Section 6.4 will conclude.

6.1   Control by hierarchy

This section establishes the theoretical literature surrounding control within hierarchies and how technology influences hierarchical control. This thesis follows Simon in that understanding organizational change is not simply a function of looking at differences of organizational charts over time (1946). Indeed, the organizational charts of armies have seen little structural change. At the beginning of the twentieth century, both the U.S. and British armies were already highly bureaucratized, having modelled their organizations after the hierarchical French and Prussian armies of the nineteenth century. With only slight experimentation (Bacevich, 1986; Heyman, 2009; J. M. House, 1985), through war, peace, new weapons and new threats, both armies' hierarchical structure and manner of control endured.

6.1.1   Hierarchies and control

Hierarchies emerged to replace more traditional and inefficient organizational forms (e.g. a monarchical or centralized control where one actor (e.g. a king or a general) centralized all decision making)(Williamson, 1981). As monarchical control was replaced, elected governments sought to structure their unelected institutions to be accountable (P. Feaver, 2003). Instead of the nepotism and favouritism of monarchs, hierarchies provided direct supervision, standard operating procedures, a clear chain of command and an "iron cage" of routine and efficiency to control actors (Weber, 1968; Weber, et al., 1947). Each level of a hierarchy is granted different levels of responsibility and authority, corresponding to the problems sought to be solved, *sui generis*, at the various levels (Fukuyama, 2004, p. 67). As this structure proved efficient, multiple types of organizations—from public to private sector—organized in these hierarchical forms.   Even professions, built on individual autonomy, increasingly organized into more hierarchical organizations.[57]

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[57] In the last century, professional organizations underwent substantial change as they sought to adopt hierarchical structures. Early twentieth century professional organizations were observed to operate in small groups, often limited by law to the size of their organization (Carr-Saunders & Wilson, 1933; Parsons, 1951). Yet Weber saw the organization of professions into hierarchical bureaucracies as imperative to standardize training, set doctrine, and impart knowledge (Weber, 1968). As professions formed increasing large hierarchical organizations (law firms, medical practices, etc.), Hughes rightly claimed the "modern professional is an organization man" (1965b, p. 9). Carr-Saunders and Wilson warned that "there is a danger that large-scale organization will prove incompatible with [professional ideals]" (1933, p. 447). As discussed in Chapter 4, professionals assumed autonomy merited by their specialized training (Burk, 2002). As professions became more bureaucratized, and as hierarchies established superiors and a chain of command within a profession, professionals were "no longer as

For centuries, armies balanced the tension between superior control and subordinate autonomy through hierarchical control, providing order to the chaos of the battlefield. Three elements define hierarchical control in the U.S. Army: "unity of command, reasonable spans of control…and effective information distribution" (U.S. Department of the Army, 2003, pp. 5-23). Therefore the discussion focuses on the influence of technology on these three elements of hierarchical control: information flow, span of control, and unity of command.

Information flow

In hierarchies, individuals communicate primarily with their immediate superiors and subordinates. This structured *information flow* ensures an actor receives guidance from a single superior and then provides guidance to their immediate subordinates (Weber, et al., 1947). This limits the degree to which the top levels of a hierarchy understand what is occurring at two to three levels beneath them. In hierarchies, if superiors want to know activities occurring two levels below, they must first ask their immediate subordinates, who will then ask their subordinates. Each request is essentially a form of *ex post* monitoring, discussed in Chapter 5, with the inherent problems of information asymmetries, hidden action and hidden information. So while hierarchies formalize and structure information flow, they also contribute to the information asymmetry between superiors and subordinates (Arrow, 1991).

Why would an organization be structured with inherent information asymmetry? Hierarchies seek to ensure the right information is provided to the right level of organization at the right time such that decisions can be made by those with the resources to carry them out. Unstructured information flow adds to the complexity of decision making at all levels (Palme, 1984; Schultze & Vandenbosch, 1998; Stanley & Deimel, 2005, p. 299; Williamson, 1973, p. 317). An unstructured information flow produces *information overload*, where information itself adds to the complexity facing not just executives, but actors throughout the hierarchy (Bawden & Robinson, 2009; Cordella, 2006, p. 200; A. Edmunds & Morris, 2000).[58] Further, unstructured information flow slows decision making (Alberts, 2002, p. 57; C. Wilson, 2004b),

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free to follow the dictates of their individual judgments as in the past, though quite unlike other workers, their work is expected to involve the use of discretion on a daily basis" (Freidson, 1984, p. 1). Abbott sees that the increasing organization of professions could threatening professional work, "We have professionalism…because competing forms of institutionalization have not yet overwhelmed it…[professions] may ultimately lose out to organizations" (1988, pp. 324-325).

[58] Indeed, as junior members of an organization are often more familiar with network technology, social networking and the handheld devices that allow access to previously unavailable information, the negative effects of information overload are increasingly felt throughout the hierarchy (Allen & Shoard, 2005; Dean & Webb, 2011; A. Edmunds & Morris, 2000).

producing a "willingness to delay decisions in the expectation of better information" (Alberts, 2002, p. 64) or attention fragmentation, distracting actors from the difficult strategic problems they are chartered to address (Drucker, 1967).

Clausewitz identified that rigid information flow was essential for military organizations as "[t]he commander…finds himself in a constant whirlpool of false and true information" (1976, p. Chapter VII). Modern military scholars note that "more powerful sensors collect more chaff as well as more wheat" (Biddle, 2004, p. 64), and practitioners have noted that increased information flow has indeed overloaded commanders and slowed contemporary military operations (McMaster, 2008, p. 10). The doctrine of both armies warns of information overload and discusses the need to prevent it by structuring information flow:

> "Neither humans nor systems can effectively accept any more than a certain amount of information. Beyond that point, more information only leads to information overload" (U.S. Department of the Army, 2003, pp. 1-11).

> "An effective headquarters should be adept at using information, rather than becoming swamped or driven by it, as an end in itself" (U.K. Ministry of Defence, 2010a, pp. 6-24).

Span of control

A second characteristic of hierarchical control is limiting the *span of control*, or the number of subordinates that report to a superior and that the superior can or should supervise (Blau & Schoenherr, 1971; Ouchi & Dowling, 1974; Simon, 1946; Urwick, 1956). Span of control directly influences the tension between superior control and subordinate autonomy. The larger number of subordinates, the more autonomy each subordinate may have. The fewer number of subordinates, the greater superiors can control each one, the less subordinate autonomy (Williamson, 1973). Simon found "[a]dministrative efficiency is increased by limiting the span of control at any point in the hierarchy to a small number" (1946, p. 53).

What is the ideal 'small number' for an appropriate span of control? With scholars recommending spans ranging from one to six, the ideal number of subordinates depends on a variety of factors.[59] First, geographical dispersion limits the span of control—if subordinates are widely dispersed, then supervisors will experience increased difficulty

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[59] Citing limitations of the "average human brain", the first to use the term discussed the ideal number of subordinates a superior could control, and found that it varied with higher levels supervising less and lower levels able to supervise more (Hamilton, 1921, pp. 229-230). Later scholars sought to identify the optimum span of control recognizing how one additional subordinate exponentially increases the number of relationships and peer groups a supervisor must oversee, limiting effective span of control to no more than six immediate subordinates (Graicunas, 1937; Urwick, 1956; Woodward, 1965).

supervising them (Barkdull, 1963; Dale, 1952; Stieglitz, 1962). Second, the nature of work and the capability of workers, where more experienced, trained and trusted subordinates may be granted greater autonomy, increases the span of control (Entwisle & Walton, 1961). Third, the capability of managers, where more skilled managers may supervise more subordinates, expands the span of control (Fisch, 1963; Janger, 1960). Fourth, the diversity of tasks, where subordinates are all performing like tasks, supervision is eased and increases the span of control (Bell, 1967; Fisch, 1963; Urwick, 1956).

The doctrine of both armies also discusses the optimal span of control and its relationship between superior control and subordinate autonomy:

> "Narrowing the span of control—that is, lessening the number of immediate subordinates—deepens the organization by adding layers of command. The more layers of command in an organization, the longer it takes for information to move up or down. Consequently, the organization becomes slower and less responsive. Conversely, an effort to increase tempo by eliminating echelons of command or "flattening" an organization necessitates widening the span of control. Commanders balance width and depth…The aim is to flatten the organization to the extent compatible with reasonable spans of control" (U.S. Department of the Army, 2003, pp. 5-25).

British Army doctrine is more sanguine concerning span of control, but recognizes that spans may change dependent on conditions:

> "[Span of control is] the number of subordinate organisations given to one commander to command directly. A sensible span of command should not exceed about 5 subordinate elements, except for brief periods" (U.K. Ministry of Defence, 2010a, pp. 6-22).

Unity of command

A third characteristic of hierarchical control is a clear *unity of command* or providing that decisions are made "through only one channel of authority" (Simon, 1946, pp. 54-55). Unity of command orders guidance such that "an employee should receive orders from one superior only, and that there should be only one leader and one plan for a group of activities having the same objective" (Rizzo, House, & Lirtzman, 1970, p. 150).   Unity of command seeks to prevent inefficiency and establish a clear line of responsibility (Gulick, 1937, p. 9) where an actor is accountable for his tasks to one and only one superior (R. C. Davis, 1951). Where span of control focuses on the superior's number of subordinates, unity of command focuses on the subordinate's number of superiors. Without unity of command, when a subordinate has more than one superior, they can use conflicting guidance and preferences of multiple superiors to expand their own discretionary space (McCubbins, et al., 1987).

Unity of command has long been advocated in a military setting. Napoleon Bonaparte's *Maxims of War* stated, "Nothing in war is as important as undivided command" (1862). Reflecting its lasting importance, unity of command is one of the U.S. Army's nine principles of war, mandating a "single commander directs and coordinates the actions of all forces toward a common objective" (U.S. Department of the Army, 2008, pp. A-3). Likewise, British Army doctrine states that unity of command requires that "each commander is accountable to only one superior" (U.K. Ministry of Defence, 2010a, pp. 6-22).

Information flow, span of control and unity of command are essential attributes of hierarchical control. Hierarchical control provides order and structure to decision making, clarifying the roles and responsibilities at each level of an organization. Hierarchical control is predictable and stable, yet few forces have been more disruptive to hierarchical control than the technologies introduced in the last 20 years.

6.1.2   Technology and disruption of hierarchical control

The adoption of information technology dramatically influenced hierarchical organizations of the twentieth century (Leavitt & Whisler, 1958; Malone, et al., 1987; Powell, 1990; Williamson, 1975) affecting hierarchical control and its structured information flow, span of control, and unity of command (Bloomfield & Coombs, 1992; George & King, 1991; Leavitt & Whisler, 1958; Malone, et al., 1987; Robey, 1981). As technology allowed information to be more easily shared, stored, transmitted and processed, new organizational structures were proposed to take advantage of these technologies (Heclo, 1978; Thorelli, 1986). Instead of the stability of hierarchical control technology would allow "[t]he number of levels in the hierarchy is reduced…The span of control is reduced…The technology becomes part of the control structure" (Whisler, 1970, p. 68). Where hierarchies sought to strictly manage information, new organizational forms were proposed to free information, potentially reducing transaction costs and facilitating greater communication throughout an organization (George P. Huber, 1990; Schein, 2010; Sproull & Kiesler, 1991).

In the 1990s and 2000s, as the U.S. and British armies adopted technology (under the NCW and NEC initiatives discussed in Chapter 3) there was a broad debate on how information flow, span of control and unity of command would subsequently change these armies. Some believed unity of command would be enhanced as a commander could more easily communicate his intent and mission orders (Cebrowski & Garstka, 1998). Others saw that

unity of command would erode, as multiple superiors could now provide guidance to a single subordinate (Arquilla & Ronfeldt, 1997a, p. 45).

While there was much debate on the effects of technology on superior-subordinate relationships, few thought the industrial-era, hierarchical military structure would endure. Believing that the beginning of the twenty-first century would herald "an organizational as well as a technological revolution" (Arquilla & Ronfeldt, 1997b, p. 5), scholars predicted both the U.S. Army (Alberts, 2002, p. 40; Boot, 2006; E. Cohen, 1996; Segal, 1993) and the British Army (Dandeker, 2000, p. 178) would transition from a traditional hierarchy to a more flattened or networked organizational structure (Macgregor, 1997, p. 88). Yet after spending billions of dollars on new technologies, the U.S. and British armies' hierarchical organizational forms persist.

6.1.3   Summary

Hierarchical control seeks to manage information flow, restrict spans of control and establish a clear unity of command. Technology disrupts hierarchical control, leading many organizations to abandon and adapt their hierarchical organizational form. While both the British and U.S. armies adopted network technologies they retained pre-information age structure and organization whereby "inserting new technology into old systems and organizations may create new inefficiencies" (N. C. Davis, 1997, p. 81). The next section examines these new inefficiencies by analyzing how the roles of actors throughout a hierarchy change when nanomanagement is possible.

6.2   Hierarchical roles and nanomanagement

Nanomanagement does not merely influence superiors in one way and subordinates in another. In the military, every soldier above the rank of private is *both* superior and subordinate with actors at all levels needing to overcome information asymmetries of subordinates while meeting the information demands of superiors. Yet not every rank is influenced in the same way. The influence of technology on an organization requires an assessment of how actors at various levels within an organization adapt and employ these new tools (Ciborra, 1993; Cordella, 2006, p. 198). To explore the effects of nanomanagement within a traditional hierarchical structure, this thesis adopts Wilson's (2000) typology of separating the hierarchy into levels of operators (low-level), managers (mid-level) and

executives (upper-level). Technology that enables nanomanagement influences the role of executives, managers and operators in different ways.

6.2.1   Executives: *shifting*, *drifting* and *grifting*

The role of the executive is organizational maintenance (P. B. Clark & Wilson, 1961) or "assuring the necessary flow of resources to the organization" (James Wilson, 2000, p. 180). Executives in government constantly seek resources (Niskanen, 1971) and autonomy, to defend their organization's turf from external actors seeking to encroach on their assigned tasks (James Wilson, 2000).[60] Advocating for budgets, establishing a clear vision for the organization, communicating that vision, and controlling subordinates to accomplish that vision are the purview of the executive.

Executives also delegate some tasks to their subordinates, the managers. In most rational choice influenced models, once superiors choose to delegate a task, they are then limited to only one activity—to monitor or not to monitor (Arrow, 1991; Pratt & Zeckhauser, 1985). Once subordinates receive a task, they may choose between working and shirking. Where subordinates have a freedom of action, superiors are limited to only determining the degree of monitoring.

Information technologies expand the options for executives to control managers. Executives readily accept technology that advances their own self-interest and reinforces their position, while resisting technology that undermines it (James Wilson, 2000). As executives control resources, how, when and to what degree an organization adopts technology will be largely dependent on whether the technology aligns with the executive's desire for greater control. However, no longer may only the subordinate violate the delegation contract by shirking. With information technology adopted into the hierarchy, this thesis argues executives now possess options beyond simple delegation and monitoring. Today, executives can be found *shifting*, *drifting*, and *grifting*.

Shifting is focusing attention on subordinate levels. Largely passive, increased information flow dramatically changes the amount of knowledge that an executive can know of subordinate activities (A. Roberts, 2006, pp. 112-114; Schein, 2010). *Shifting* is beyond monitoring. *Shifting* is the constant observing, in real-time, of subordinate activities. When

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[60] This is similar to a profession's defence of autonomy over an area of abstract knowledge discussed in Chapter 4.

s*hifting*, executives shirk their organizational maintenance tasks, and instead focus their attention towards observing action at the manager and operator levels.[61]

Drifting is acting at subordinate levels. Information technology tempts superiors to move away from the critical tasks of their level, to do more than observe subordinate actions but to perform those actions themselves (Hunt, 2003). *Drifting* is enabled by modern forms of *ex post* control, such as drones, trackers and long handled screwdrivers (Chapter 5). Like *shifting*, *drifting* comes at a cost to the superior-level tasks that are ignored when acting at the subordinate level. Additionally, *drifting* comes at a more severe cost to the autonomy of subordinates. Executives not only know more about what their subordinates are doing; with *drifting* they may take control of subordinate action.[62]

Grifting is cheating the hierarchy by controlling actions at levels beneath immediate subordinates. This hierarchical cheating by executives marginalizes managers. *Grifting* depends on technology that expands the span of control of executives, and increases information flow allowing executives to direct, observe and monitor operators. Further, this open line of communication allows operators to marginalize managers, now able to report directly to executives. For example, a conservative manager may seek more time and resources before proceeding, claiming an operator is not ready or up to the task. Through *grifting*, an executive may now directly communicate with an operator, determine the operator's readiness, and then direct the operator to execute the mission, to the exclusion of the manager.[63]

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[61] British Army doctrine warned that information technologies would allow actions that I define as *shifting* where "information may in [the] future more easily distract commanders from their strategic and operational foci, further hindering their deep understanding of the situation" (U.K. Ministry of Defence, 2004b, p. para 404).

[62] *Drifting*, as described here differs from coalitional or principal drift. Principal or coalitional drift occurs when, after establishing an agency, the preferences of the principals change and modify. In anticipation of this coalitional drift, principals will hard wire institutions such that future, drifting principals will be unable or unlikely to exert significant change (Epstein & O'Halloran, 1994; Horn & Shepsle, 1989; K. Shepsle, 1992; K. A. Shepsle & Bonchek, 1997). It more closely resembles bureaucratic drift, where policies drift from the original intention through independent action of bureaucrats (McCubbins, et al., 1987; O'Connell, 2006). In our case, it is the independent action of superiors that allows *drifting*.

[63] Air Vice-Marshal McNicoll, testifying before Parliament, outlined the potential for *shifting*, *drifting* and *grifting*: "if, for example, there was a small operation going on somewhere and something was happening in that operation that might have a strategic impact, it may be possible in future (and it is to some extent possible now) for people at the strategic or grand strategic level to reach across the operational and tactical levels of command and make a decision and alter what is occurring there… [This does not mean] we get rid of the tactical and operational layers of command. There are still functions that these levels will have to carry out and the larger the operation the larger the burden on them because of the ability of somebody at the top of the tree to be able to see everything that is going on will obviously not be there regardless of how big the network is. This is one of the potential downsides of network-enabled capability; it allows 'long screwdrivers' to reach forward. What we

Shifting, drifting and *grifting* undermine hierarchical control. They disrupt information flow, expand span of control and confuse unity of command. These actions of superior control directly affect an organization's ability to define roles into a set of tasks and responsibilities. This ambiguity of role leads to increased anxiety and can lead to less effective performance for both executives and the levels beneath them (Kahn, 1981). While this section focuses on executive *shifting*, *drifting* and *grifting*, these actions are available to superiors throughout a hierarchy. However, with control of resources and multiple levels of subordinates below them, one should expect to see these actions most clearly at the highest levels, thus the focus on executives.

Modern technology increases the ability of superiors in different organizations to s*hift, drift* and *grift*; yet executives in professions will be exceptionally prone to these activities. First, in professions executives are experienced at the manager and operator level. Indeed, the rigid promotion schedule of military hierarchies ensure that the more experienced make the strategic decisions (Blaker, 2007).

Second, action at the manager and operator levels is in many ways more professional. As professionals rise in organizations, their role is one of organizational maintenance—a task of management, not necessarily a task of a professional. Generals may seek to relive their role on the battlefield, chiefs of surgery in the operating room, heads of law firms in the courtroom.

Third, action at the manager and operator levels is in many ways more resolvable. The work of upper-level professionals is often more abstract than the quantifiable, concrete results of low-level activities. Upper-level issues may take weeks and months to resolve, and focused effort to understand. In addition, success and failure at the upper-level may be more difficult to determine with only incremental and marginal changes noted on a day-to-day basis. Conversely, low and mid-level efforts may often be resolved in a single hour.

Fourth, executives of professions must guard the organization from external threats, maintaining the autonomy for the overall profession (Blau & Scott, 2003). As Chapter 4 discussed, external sanction comes at the cost of the overall reputation of the profession. If,

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want to try and do in our evolving thinking is try and work out procedures, a doctrine, for how we exercise that command such that control is exercised when it should be but is not over-control nor excessive control across the layers of command" (U.K. Parliament Defence Committee, 2003, p. 34).

through *shifting*, *drifting* or *grifting* executives can be seen as conducting organizational maintenance by protecting professional autonomy, they will do so.

Information technologies allow executives more choices than deciding on the degree of delegation and the subsequent amount of monitoring. Through *shifting*, *drifting* and *grifting* executives may now be much more involved in their subordinates' activities. The 1990s was thought to produce the strategic corporal—a low-level actor that, because of media and instantaneous communication, can act at the strategic level (Krulak, 1999). Usually perceived as negative, the actions of the lowest level operators (e.g. soldier abuse at Abu Ghraib) were seen to have strategic effects. With tools that allow executives to *shift, drift* and *grift*, the modern battlefield produces another actor—the tactical general—a high-level executive that, because of technology, directs action at the tactical level (Singer, 2009; Sowers, 2008).

6.2.2   Managers

The effects of information technologies on the executive level are significant, largely empowering the executive. At the managerial level, the effects are existential, excluding and functionally eliminating managers. The role of managers is to "coordinate the work of operators in order to attain organizational goals" with "powers...sufficient to produce the needed coordination" (James Wilson, 2000, p. 154). In hierarchical control, managers serve the vital role of limiting spans of control while monitoring subordinate performance and correcting problems (Alberts & Hayes, 2003, p. 41). One would expect managers to readily adopt tools that allow them to monitor their subordinates more closely.

Does increasing technology empower managers? As a manager can increasingly control a subordinate's work, it may "simplify[y] the managerial problem" (James Wilson, 2000, p. 160). Yet the same technology simplifies the executive's problem, allowing them to observe and direct action at both the managerial *and* operator level. With modern technology that enables executives to *shift, drift* and *grift*, information can flow directly from executives to operators, excluding managers from their traditional role of operator supervision.

The effect of *shifting*, *drifting* and *grifting* on managers—*ex claudere* controls
How does the ability of executives to *shift*, *drift* and *grift* influence their immediate subordinates, the managers? As the costs decline for the highest levels to gain information on the lowest levels, the roles performed by many mid-level managers become obsolete (Nichiporuk & Builder, 1997, p. 299). In business, these managers will be eliminated. In

public institutions, or other hierarchies where organizational restructuring is far less responsive and nimble, managers may be controlled by exclusion, what I term *ex claudere* controls.

Ex claudere controls differ from the *ex post* and *ex ante* controls discussed in Chapter 4 and 5 respectively. *Ex ante* controls seek to control subordinate behaviour through selection, screening and training. Yet the most stringent *ex ante* controls will still not produce in managers the same amount of expertise that the executive possesses. Empowered by technology, executives can cheat the hierarchy and bypass managers, exerting influence on operators either through observation or direction.

Ex post controls seek to control subordinate behaviour through monitoring. With information technologies that allow executives to *grift*, *ex claudere* controls enable executives to forgo monitoring of their managers. Instead of delegating tasks to managers, a *grifting* executive may now communicate and direct operators, bypassing the managerial level. Trackers, drones and long screwdrivers all decrease transaction costs for executives seeking to control operators. Indeed, technology that enables *grifting* reverses information asymmetry in another way. With *grifting* managers comes the possibility that their superiors may know more information about their subordinates, in greater quantities, qualities and sooner, than the manager does (Blaker, 2007, p. 48).[64]

Just as *ex claudere* controls may solve some executive-level problems, they may create new inefficiencies. Excluded managers may "demand more and more information as a way of justifying their existence" (James Wilson, 2000, p. 228). Information technology magnifies information demands as they flow through a hierarchy. An operator's report, sought by an executive by a certain time with a certain detail, will likely be demanded by the manager earlier with greater detail. This produces a "demand cascade" with each hierarchical level adding to an initial information request (U.S. Department of the Army, 2003, pp. 3-12). When organizations adopt network technologies but retain hierarchical forms, the manager loses autonomy yet critically retains the tools to exert greater superior control. In cases where an executive *shifts*, and especially *grifts*, a race for information ensues with managers scurrying to know more information about their operators than their executives know (Schein, 2010, p. 287).

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[64] U.K. doctrine actually predicts this: "Armed with appropriate timely information, higher headquarters may have better overall situational awareness than local commanders" (U.K. Ministry of Defence, 2005).

6.2.3 Operators

Operators are the front-line workers, "a person who does the work that justifies the existence of the organization" (James Wilson, 2000, p. 33). In hierarchies, operators are granted the least autonomy and are the most tightly controlled. These street-level bureaucrats nevertheless will exercise their own discretion, interpreting policies in order to carry out the work of the organization (Lipsky, 1980). *Shifting*, *drifting* and *grifting* by executives allow not only a reduction of information asymmetry, but also an ability to act and communicate with the operator level. Trackers, drones and long screwdrivers increase the transaction costs for the operator. With their positions and actions known, their ability to shirk is further reduced.

Yet technology may increase an operator's autonomy for four reasons. First, in an environment where information can be instantly transmitted and known both inside and outside an organization, the low-level operators' ability to have strategic impact increases (e.g. the strategic corporal). This creates incentives for the lowest levels to be granted greater access to information and greater autonomy to determine how to use it (Alberts & Hayes, 2003; Krulak, 1999). Strategic corporals require access to strategic-level information.

Second, as information flow becomes less structured, "commanders cannot control what subordinates see or know" (Alberts, 2002, p. 60). With technology, operators may see and analyse information that was previously restricted to the manager or executive level. These operators may then take more initiative or second-guess decisions made at higher levels.[65]

Third, *grifting* allows communication not simply from executives to operators, but *between* executives and operators. Just as an executive can cheat by exerting more influence down an organizational structure, operators can cheat by exerting more upward influence. An operator suffering underneath an incompetent middle manager now has multiple secure and direct lines of communication with the executive, the boss's boss.[66]

Fourth, technology muddies unity of command, adding confusion to the guidance that operators follow. As technology opens up new lines of communication, which guidance should an operator follow—that of a manager or an executive? To whom should the

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[65] British doctrine warned of the potential of "tactical anarchy" when operators are granted too much autonomy (U.K. Ministry of Defence, 2004b, p. para 207).

[66] An example of this is the British Army's Rumour Service whereby internal whistle-blowers could perform their duties with anonymity (T. Edmunds & Forster, 2007).

operator report? Unity of command is threatened, with an operator being able to select and choose from multiple levels instead of a single superior.

It is not enough to say technology influences superiors is one way and subordinates in another. Nanomanagement affects different levels of a hierarchy in different ways. The most profound effects should be observed in the mid-levels of hierarchical organizations. The following case study, the exodus of mid-level officers in the U.S. Army, examines these effects.

6.2.4   A case study of the U.S. Army: effects of *shifting*, *drifting* and *grifting*

The organizational structure of the U.S. Army today is remarkably similar to its organizational structure ten, twenty, and even fifty years ago. Simon (1946) suggests that one must look beneath the surface of organizational charts to understand how organizations adapt to disruptions and new conditions.

On the surface, the organizational structure of the Army seemed stable. However, as the U.S. and British armies adopted network technologies, the managerial level was not eliminated; instead the proportion of mid-level manager positions expanded.[67] While the proportion of mid-level officers expanded, in the early 1990s, the rate at which mid-level officers were leaving the U.S. Army increased (Wardynski, Lyle, & Colarusso, 2010b).[68] By 2006, the U.S. Army projected a shortage of 3,000 officers with the "most acute shortfalls in senior captains and majors with 11 to 17 years of experience" (Henning, 2006). Dubbed an "unprecedented exodus" (M. Smith, 2007) the dearth of mid-level U.S. Army officers created

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[67] In the last 60 years, in both the U.S. and British armies, the overall proportion of officers to enlisted soldiers expanded. Today, as opposed to World War II, there are nearly four times as many general officers (executives) in the U.S. Army, and close to eight times as many in the British Army. Where the British Army has become especially executive-heavy (A. King, 2011), the U.S. Army has expanded most at the manager level. In World War II, there was one U.S. Army field grade officer for every 190.1 enlisted soldiers. Today, that ratio is one field grade for every 12.3 enlisted, or proportionally fifteen times more mid-level officers compared to just 50 years ago (2010a). Instead of technology flattening the middle, the middle has fattened. Numerous explanations have been offered as to the increase of mid-level officers in relation to enlisted soldiers, ranging from the long-term decline of amount of manpower enlisted, to the need for greater technological and managerial skill manifested in commands (Offenhauer, 2007). Theorists saw that the rise of staff positions and assistants could mitigate the span of control (Barkdull, 1963; Stieglitz, 1962), allowing militaries to control greater organizations by virtue of expanding staff positions for mid-level officers (Urwick, 1956, p. 46).
[68] While the author was able to obtain data concerning the mid-level officer exodus in the U.S. Army, in the British Army the implementation of the Joint Personnel Administration System in 2007 made current data unavailable. On May 30, 2011, a Freedom of Information Act was filed with the U.K. government to request information prior to 2007. On June 22, 2011, a response from the U.K. MoD was received (U.K. Department of the Army, 2011). Where applicable to the following case, a footnote will indicate corresponding, British Army data.

a void such that "by 2014, the U.S. Army may be short 30% lieutenant colonels and 20% majors" (George Brown, 2008).

There are a number of reasons offered by both official and unofficial studies to explain this exodus (Harding, 2007). Deployment schedule, time with family and related personal issues were a stated cause of mid-level officers giving up their commissions. Yet as armies of the past faced similar conditions, without seeing a similar exodus, the studies uncovered a surprising finding. Across a wide body of surveys, junior officers indicated a lack of autonomy as a reason for leaving the U.S. Army (Wong, 2000), noting "excessive micromanagement by superiors" (M. R. Lewis, 2004).

The U.S. Army attempted a wide variety of strategies to respond to this exodus. First, financial incentives were offered.[69] In 2007, the U.S. Army began an unprecedented program of offering financial incentives of up to $35,000 for mid-level officers to stay in the service (Tice, 2008b).[70] A 2010 assessment of the $500 million program concluded it "may have done more harm than good" by paying marginal officers, who would have stayed without pay, while not preventing talented officers from leaving (Wardynski, et al., 2010b, pp. 26-27).

Second, the U.S. Army accelerated promotion of officers from the low to mid levels. The U.S. Army reduced the time by 30% from entry into military service (commissioning) to promotion to captain. By accelerating promotion time, junior officers were hurried through the ranks. Figure 6.1 graphs the declining amount of time from commissioning to promotion to captain between 1990 (54 months) and 2010 (38 months).

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[69] As Congress sets military salaries, the U.S. Army was constrained in giving mid-level officers salary increases. In response, the U.S. Army has offered financial bonuses for staying in the military. While these reenlistment bonuses have long been employed to enlisted soldiers, bonuses were traditionally not offered for officers to stay in the U.S. Army.

[70] The first year of the program enticed 12,556 officers to reenlist at a cost of nearly $400 million (Tice, 2008a), falling short of its goal of 14,000 officers (Coates, Silvernail, Fulton, & Ivanitskaya, 2011). The program was extended for an additional year where an additional 2,769 officers reenlisted for the bonus. One criticism questioned whether the army retained their most talented officers or merely paid additional funds to retain marginal officers that were already intent on staying in the military (Coates, et al., 2011).
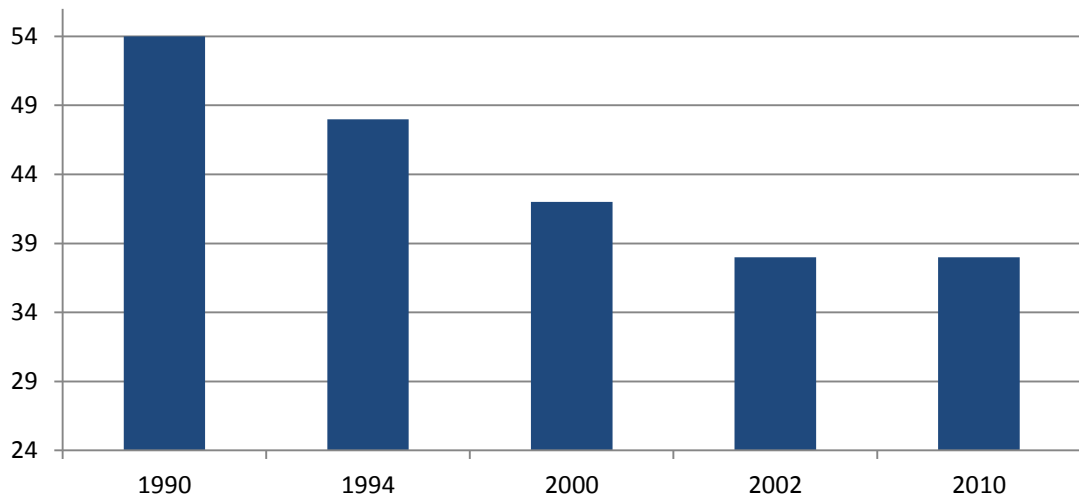
Figure 6.1 Months from commissioning to promotion to captain—U.S. Army (1990-2010)[71]

Third, the U.S. Army increased promotion rates to close to 100%, from lieutenant all the way to lieutenant colonel (Broadwell, 2009; Wardynski, Lyle, & Colarusso, 2010a).[72] Figure 6.2 graphs the increasing promotion rates from the historical average, to 2005 to 2009.
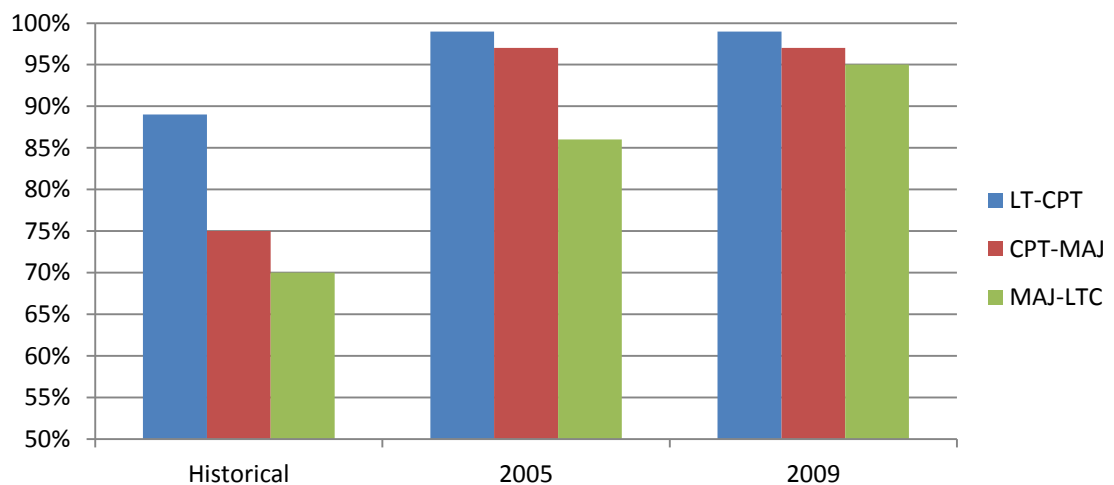
Figure 6.2 Increase in promotion rate in the U.S. Army[73]

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[71] *Source (Congressional Budget Office, 1990) and (Wardynski, et al., 2010b).* In the British Army, promotion rates to captain were much more stable, falling from six to five years in 1994 and remaining constant at five years through 2010 (U.K. Department of the Army, 2011).

[72] An officer commissioned in 1990 stood a 70% chance of being able to serve twenty years and be promoted to lieutenant colonel; by 2009, that chance had risen to 95%. Junior officers received "virtually no performance ranking" in their promotion to major (Wardynski, et al., 2010a). As one senior army officer stated, "Basically, if you haven't been court-martialed, you're going to be promoted" (Mazzetti, 2006). As standards were relaxed, an officer could now serve 15 years, with minimal separation of rank or pay between the worst and the best performing officers (Kane, 2011).

[73] *Source (Henning, 2006) and (Wardynski, et al., 2010b).* In the British Army, promotion rates were available for two periods, 1994-2001 and 1999-2006. Between these two periods, promotion rates increased for all three ranks albeit far from the dramatic changes seen in the U.S. Army: LT-CPT

Fourth, the U.S. Army reduced the selection and screening criteria for commissioning by changing the proportion of officers commissioned to the least rigorous of the three traditional sources.[74] As more mid-level officers left the ranks, the Army compensated by "radically shift[ing] its sources of commission from those that extensively screen, vet, and cull for talent…to those with minimal talent filters" (Wardynski, et al., 2010b, p. v). Figure 6.3 shows the percentage mix of commissioning sources from 1998-2009.
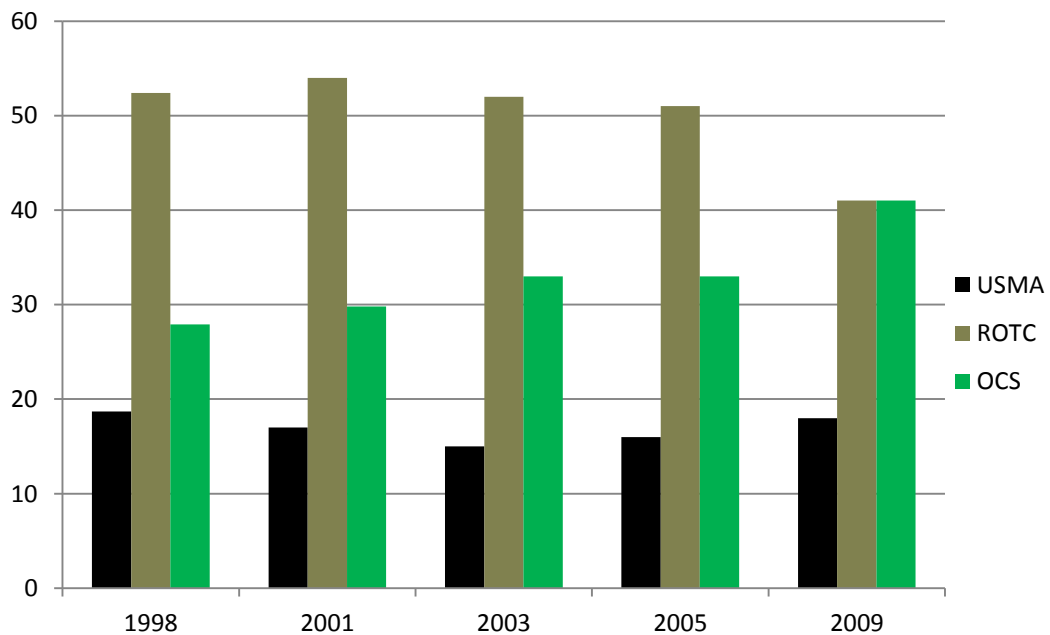
Figure 6.3 Source of U.S. Army officer commission (1998-2009)[75]

Fifth, to make up for the shortfall of mid-level officers, the U.S. Army commissioned thousands of excess lieutenants (Wardynski, et al., 2010a). While an exodus of mid-level

(77.2%-84.0%). CPT-MAJ (59.5%-62.0%). MAJ-LTC (48.6%-51.0%) (U.K. Department of the Army, 2011).

[74] For officers in the U.S. Army, there are three routes to becoming an officer—officer candidate school (OCS), attending a civilian university on an R.O.T.C. scholarship or attending the United States Military Academy (West Point). West Point and R.O.T.C. both provide a college degree and consist of training typically for the entire four years of college; conversely, OCS is only three months in length. OCS is a 14 week school that allows enlisted and other individuals to be directly commissioned and does not require candidates to have an undergraduate degree. OCS has typically been used during wartime when the size of the military is expanding (Coumbe, 2010). It has been estimated that the cost to train and commission an officer through West Point is three to four times the costs of R.O.T.C. and eight to fifteen times the cost of OCS (Congressional Budget Office, 1990). This cost has been justified by performance; West Point graduates are rated significantly higher as they move up through the ranks, trailed by R.O.T.C and then OCS (Wardynski, et al., 2010b).

[75] *Source (Henning, 2006) and (Wardynski, et al., 2010a).* The British Army has seen the opposite shift of commissioning source, towards more graduates. The British Army has changed from approximately 60% non-graduate/40% graduate in the early 1980s to 15% non-graduate/85% graduate in 2009. In the response to the FOIA request, the respondent stated this change "has simply been a manifestation of a greater number of graduates in society" (U.K. Department of the Army, 2011).

managers would influence most organizations, this exodus affects professional organizations severely. In a profession, executives have fewer tools to replace departed managers. In contrast with other businesses, the military profession does not allow (except in rare circumstances) outsiders to enter into the profession at a mid-level.[76] Yet commissioning excess officers affects the set amount of time allocated for a new professional to both qualify and then apprentice in a low-level position.

Mid-level professionals cannot be conjured or directly hired; they must gain critical experience in the lower ranks of the profession. The first major apprenticeship of a U.S. Army officer's career, and step towards mid-level, is leading a platoon. As Figure 6.4 demonstrates, as the U.S. Army commissioned more junior-level officers (excess lieutenants), the amount of months that lieutenants had in their key developmental job decreased precipitously, resulting in less experienced mid-level officers. A U.S. Army study found that reducing platoon leader experience for junior officers encouraged "senior officers to be more directive in their leadership and less tolerant of mistakes" (U.S. Department of the Army, pp. OS-8).[77]

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[76] The military profession bears the burden of *ex ante* training costs. All professionals pay the upfront opportunity cost of time committed to professional training. Yet in both the medical and legal profession, professional school costs are borne by most students. Not so in the military profession, where the U.S. government dedicates hundreds of thousands of dollars and years of time to produce a mid-level officer. Further, once commissioned as an officer, training costs continue to be borne by the organization. In the military profession, the cost of building mid-level officers is born largely by the organization not the individual officer.

[77] For an excellent summary of the mid-level officer exodus see Lewis (2004). He captures the junior officer frustration: "The young staff officer was triply frustrated; he was micromanaged in his platoon leader job because he never fully matured there. Pulled out of his platoon too early, he was ill prepared to serve on a higher-level staff and he was micromanaged there as a result" (M. R. Lewis, 2004, p. 78).

Number of Excess Lieutenants (operators) by Year Group   **Average Rated Months of Platoon Leader Time**
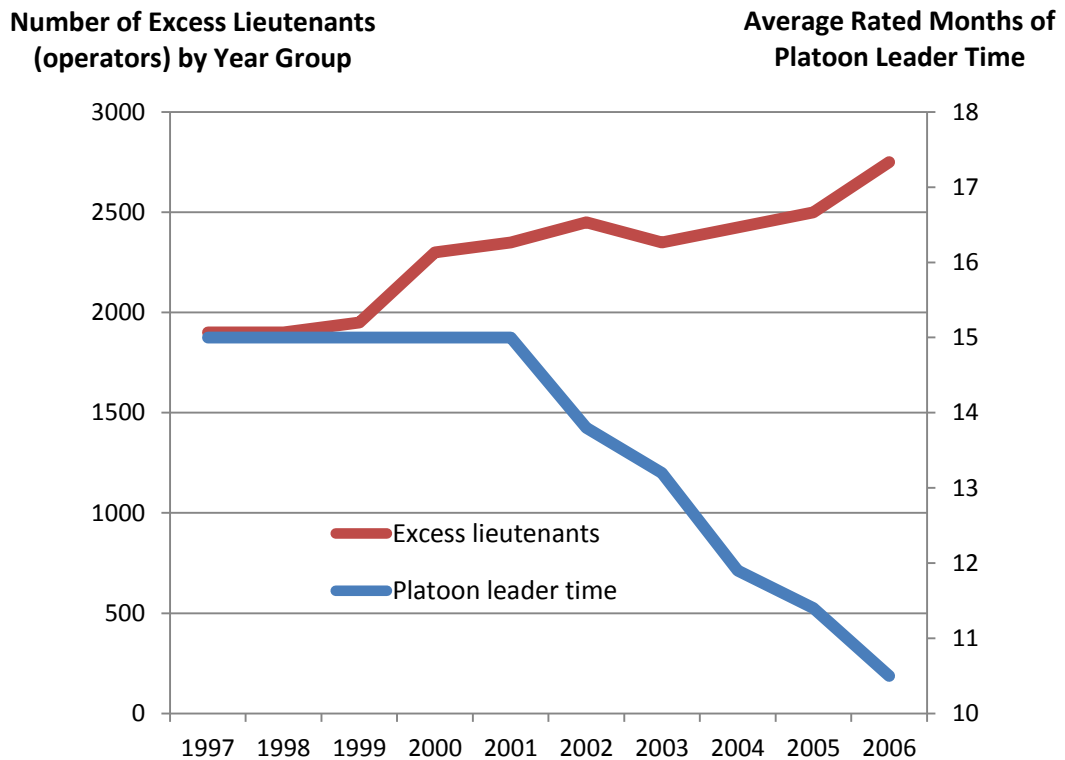
Figure 6.4 Excess lieutenants against platoon leader time[78]

The data on the effects of the exodus is clear—the pool of mid-level officers became younger, less educated, and less experienced.   Officers that in the past would never have been promoted into the mid-level ranks were now not only given financial incentive to stay but were almost universally promoted.

6.2.5   The cycle of nanomanagement

In the above case, one can begin to see a cycle of nanomanagement, a disruptive force for organizations that adopt information technology but retain their mid-level positions in rigid hierarchical organizations:

> Step #1: Technology allows upper-level officer (executive) to *shift*, *drift* and *grift* marginalizing mid-level officers (managers) and nanomanaging the low-level officer (operator). The effect is that the low-level operators feels less autonomous and empowered, less willing to take risks. The mid-level manager suffers a loss of autonomy and is excluded from their traditional role. Seeking to retain their information advantage over their executives, the mid-level manager scurries to find out what their operators are doing, increasing the information demands on the low-level operator.

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[78] *Source (Wardynski, et al., 2010b, p. 6).*

Step #2: Frustrated by being excluded and by a lack of autonomy, talented operators and managers leave the profession. Remaining low-level operators are promoted with greater speed, with less experience, into mid-level manager positions as standards are lowered in order to fill the now vacant mid-level positions. Underperforming and incompetent managers who would normally be discharged, separated or retired are retained. Those mid-level managers who do stay are promoted to be executives from a smaller pool of candidates many of whom have institutionalized lessons of nanomanagement as appropriate.

Step #3: With less experienced mid-level managers, the upper-level executives see even more reason to tightly control subordinates. Furthermore, these former mid-level managers, that were conditioned to accept nanomanagement as appropriate, do so now as executives. They bypass the mid-level manager, and direct low-level officers, or act at that level—they *shift*, *drift* and *grift*.

When this cycle repeats, it may actually resemble more of a spiral than a cycle, producing worse results with each repetition. As the worst junior officers are promoted to the mid and upper-level ranks at the same rate as the best junior officers, talented junior level operators increasingly leave the service, further shrinking the talent pool of future mid and upper-level officers. Further, as the worst junior officers are promoted they require the most supervision. This produces rational justification for superiors to seek ever tighter control.

The ordering of these three steps is not to imply that the cycle must begin with Step 1. This cycle may begin with a mid-level manager leaving an organization, producing a void that must be filled. More data would be helpful in determining the spark of this cycle. Yet regardless of what initiates the cycle, the sequence of effects is not impossible to reverse. As seen in Chapter 5, when superiors become more familiar with the costs of nanomanagement, they may develop practices that restrict how and to what degree superiors may use this technology. Whether the cycle is observed by mid-level officers, whether it repeats or whether it reverses will be explored in section 6.3.

6.2.6   Summary

The clash between new technologies grafted onto old hierarchical organizational forms produces effects on information flow, span of control and unity of command, changing the roles for executives, managers and operators. For executives, trackers and drones enable *shifting*, where their attention may fix on levels far below their mandate. Further, long screwdrivers allow *drifting* and the ability to act at the manager and operator level. Finally, *grifting* opens up new channels of communication between executives and operators,

excluding managers from their traditional role. For managers with reduced autonomy and now controlled by *ex claudere* controls, they find themselves scurrying to gain information before their superiors, increasing the information demands on operators. Frustrated by a lack of autonomy, mid-level managers leave the organization. Those that stay adopt *shifting, drifting* and *grifting* as appropriate and replicate these activities when they are promoted. For the operator, increased technology both allows for access to previously unavailable information, and opens a new line of communication with executives.

Table 6.2 captures the changes to control and autonomy at the executive, manager and operator level as technology is adopted in a static hierarchical structure. Executives see increased control. Managers see lost autonomy. Operators see variable changes to their autonomy.

	Information flow	**Span of control**	**Unity of command**
Executives Pre-tech	**Uni-directional** Receive and request information from managers	Limited to supervision of 3-5 subordinates	Strict chain of command; clear lines of authority
Executives Post-tech	**Multi-directional** *Grift*—use *ex claudere* controls to bypass managers New information produces information overload **Increased control**	*Shift*-no longer constrained by chain of command executives may direct their attention to multiple subordinates **Increased control**	*Drift*-ability to direct action of managers *Grift*-ability to direct action of operators as well **Increased control**
Managers Pre-tech	**Bi-directional** Receive information from executives and request information from operators	Limited to supervision of 3-5 subordinates	Strict chain of command; clear lines of authority Primary concern is to meet information demands of single superior—the executive
Managers Post-tech	**Multi-directional** Able to be bypassed Will increase information demands on subordinates in attempts to maintain their information asymmetry Information overload will be observed **Loss of autonomy**	*Shift*-able to control more operators and also be excluded **Loss of autonomy**	As operators can receive direction from executives, excluded from clear line of command **Loss of autonomy**
Operators Pre-tech	**Uni-directional** Information received from, and sent to, managers	N/A	Strict chain of command, clear lines of authority. Primary concern is to meet information demands of single superior—the manager
Operators Post-tech	**Multi-directional** Able to communicate with executives Must meet increased information requests from both managers and executives **Variable autonomy**	N/A	Multiple inputs from various levels of the organization Able to select guidance from a menu of options **Variable autonomy**

Table 6.1 Nanomanagement in hierarchies

I would expect to observe different behaviours as technology is adopted and used to nanomanage. For executives, as technology allows increased superior control, *drifting*, *shifting*, and *grifting* are observed. For managers, as technology reduces their autonomy, they increase their information demands on subordinates while meeting the information demands of superiors. For operators, nanomanagement produces variable changes to their autonomy. With different effects, the analysis turns to the empirical evidence analyzing how the mid-level managers of this case that could be nanomanaged, could nanomanage and could be excluded, experienced nanomanagement in Iraq.

6.3 Empirical findings

The mid-level officers were in a unique position to provide observations at the executive, manager and operator levels. When serving on staffs at the executive level, these mid-level officers could observe executive behaviour. In both command and staff positions at the manager level, these mid-level officers could provide the most robust observations. And as former operators, with many having deployed at a junior rank in the early stages of the Iraq War, they could also provide observations at the operator level.

6.3.1 Executive *shifting*, *drifting* and *grifting*

> "It wasn't interference. It was the benefit of additional capacity of our headquarters being brought to the [subordinate's] plan" (U.K.-25).

For executives, technology enabled increased superior control. As technology also increased information flowing to the executive level, officers observed tell-tale signs of executive level information overload:

> "[At the executive level] we do tend to overload ourselves with routine white noise, which can detract from what you're really there to do…to contain the guzzle of information" (U.K.-19).

> "There was a lot of information, but [executives] needed that information to ensure that [they] were making the right decision" (U.K.-28).

> "So there were a lot of instances there in Iraq where we would be looking for more in-depth information but get possibly more than, and at a level of detail, we probably shouldn't have got" (U.S.-02).

Shifting

The mid-level officers observed how technology distracted executives from their assigned tasks, allowing them to fix their attention on subordinate activities:

"On nightly time sensitive raids, then everyone is watching us. [1UP] wouldn't interfere, they would monitor my company net which I wasn't too happy with. The [2UP] was almost always watching. [2UP] staff guys would talk to you next time they saw you...then they'd offer you their two cents, like it went well, or you looked fucked up" (U.S.-21).

"I would say there were probably more than 30, 40 people including my [1UP], the [2UP], the commanding officer, the deputy commander…always the JAG [legal officer]. Then you'd have myself and the battle staff watching it" (U.S.-08).

"I did feel for the company commander on the ground knowing that people back in rear were watching what he was doing on the ground" (U.K.-31).

As expected, the primary cost of *shifting* noted by officers of both armies was the transfixing effect of drone technology:

"The UAV feed is the car wreck on the highway" (U.S.-09).

"It transfixed. It was always like something out of YouTube. Everybody would be watching it like it was, you know, the coolest thing ever" (U.S.-10).

"He [the superior] was always watching" (U.S.-06).

"[UAVs] captured the entire headquarters completely. Everyone was fixated…[UAVs] were a drinking straw approach to combat" (U.K.-29).

"[Operations were monitored with technology] regularly…There were sensitive feeds coming in on what we call Kill TV. I would watch that…So I could do something about [the subordinate's operation] as soon as it occurred" (U.K.-22).

Those that noticed a focus at subordinate levels seemed to indicate that they understood the costs of *shifting*:

"I mean we're focusing on these current tactical operations. What we're losing sight of is the current center of gravity" (U.S.-07).

"Guys like to watch. It doesn't mean anything. They just look at it… everybody is in the TOC looking at the [UAV] feed. You could have taken the feed away and it wouldn't have changed nothing" (U.S.-09).

"[The executives] really wanted to know what was going on [at the operator level]. They knew they had absolutely no effect on situations because that's completely out of their purview" (U.S.-02).

"We didn't lose sight of our primary operational task, but we did become occasionally utterly fixated on small tactical actions" (U.K.-29).

"There was a fascination in watching what was going on, on the ground, but it doesn't actually help the operation because it distracts" (U.K.-31).

Instead of *shifting* answering more questions about subordinate activities, officers stated *shifting* sometimes produced more questions:

> "In a more conventional fight, [superiors] would be fighting their battalion or brigade…instead of answering questions he ends up asking more questions based on [the UAV]" (U.S.-09).

The desire to *shift* posed tangible costs, not just in knowing that actions were being observed, but also in delay:

> "Our guys were in the right location…but because we couldn't see them in the UAV feed they delayed the mission. It took two and a half hours to get on target just so the [2UP] could watch the mission go down…After that, we took a step back and asked well what is it for? Is it for [2UP] to watch and verify what the [2DN] were doing?" (U.S.-21).

Drifting

This desire to 'do something' came up repeatedly in the interviews and shows a distinction between *shifting* and *drifting*. When the sub-categories of police patrols introduced in Chapter 5 provided information that subordinates did not have, superiors were tempted to move past passive observation (*shifting*) into active direction (*drifting*) of their immediate subordinate's action (U.K.-29; U.S.-09):

> "Everybody would sit there and watch to see what was happening… sometimes the colonel would make his directives back down to the battalions to do this or do that by looking at the UAV feeds" (U.S.-16).

There seemed to be more of an acceptance of *shifting*, yet *drifting* was seen as an inappropriate encroachment on subordinate autonomy:

> "The commander at the [1UP], [2UP] and [3UP] has to have discipline to not be involved in what we were doing. Yes you can monitor and ask questions. You just don't get into and say move your guys here. You have the possibility of leaders echelons above each other to get more involved in what subordinates are doing" (U.S.-20).

> "We mostly watched UAV footage almost twenty-four hours a day…it was monitoring, but we didn't watch it to manoeuvre troops around the battlefield" (U.K.-28).

> "But then [2UP] is watching the same feed, but they wouldn't micromanage…Mostly they didn't micromanage too much" (U.S.-07).

In professions, executives have served and succeeded at the operator and manager level. Officers remarked that as a result, executives preferred to act at subordinate levels:

> "A lot of it is an inability for some senior leaders to truly think and conduct themselves strategically…The comfort zone is at the tactical level, so they revert back to the tactical level…they just naturally seem to pour their energy into where they're most comfortable" (U.S.-07).

> "[Technology allowed those] wanting to be involved, [to be involved] with it, but not necessarily understanding what was going on the ground…the more senior officers haven't had that background…they may not have been under fire" (U.K.-7).

This thesis proposed a second reason why one would expect more *drifting* in professions—escape from organizational maintenance. Real-time technology enables escape for the executive level whose job is seemingly abstract or less relevant, incentivizing senior executives to direct action at subordinate levels:

> "Have you ever seen the movie *Aliens*? Every soldier had a little camera on their head, and the lieutenant sat back in the armoured vehicle and monitored where the soldiers were and was able to manoeuvre them…That's where I see us going. The command will be able to separate themselves from getting dirty, and manoeuvre the soldiers around on the battlefield…like it's a video game" (U.S.-10).

> "It was very personality dependent…One guy gets technology and he's hands off, another would get his hands on…because they can, some do. Especially when their boss, and rater, and senior rater is watching the screen" (U.S.-18).

Grifting

While *grifting* was reported at the manager level, it was observed at the executive level:

> "I can remember being in the American TOC…and the entire TOC is sitting there watching the feed on UAV. One comment I always remember is 'Somebody tell that mother fucker to look to his left!' So it's like a [staff officer] calling down to give an order to a private on the ground…which I guess it can be considered a good thing, but then again, that guy on the ground has got a lot going on" (U.S.-05).

> "[A] lot of times we'd even bypass [1DN] and go straight down to [2DN], sometimes right down to the [3DN] because [the commander] wanted to know" (U.S.-02).

> "The [2UP] had good command of the situation, and because of his desire to get down and dirty in the weeds, he spent more time with [2DN]…rather than go through the chain of command" (U.K.-16).

Officers of both armies noted how *grifting* executives would anticipate requests (U.K.-14; U.K.-29; U.S.-01; U.S.-18).

> "We were able to watch, and deliberately not engaging in what [subordinates were] edging to do. But knowing that if there was assets that had to be queued we would jump ahead and didn't have to wait to get a call" (U.K.-29).

*Grift*ers noted that on many instances what executives believed to be needed on the ground was not actually requested (U.K.-29; U.S.-11) or needed:

"It was considered either a hindrance or a wasted asset" (U.S.-11).

"We were not being particularly helpful by interfering because we had this God's eye view of what was going on" (U.K.-29).

"[Technology] made us more focused on tactical issues than I guess a headquarters ought to be…I can recall a few occasions where [2DN] commanders would come back afterwards and say actually that wasn't that helpful…please don't do it again unless I ask you to" (U.K.-29).

Officers of both armies attributed this *grifting* to the 'warrioristic' culture of the army and commanders in headquarters wanting to be involved (U.K.-7). Others mentioned how these feeds connected those sitting in offices to those engaging in fire fights:

"People are under direct fire and [superiors in rear headquarters] want to feel like they're taking part in it, but I think it's a bit distasteful" (U.K.-7).

"There's a tendency where rounds are flying and people's adrenaline is up, it's exciting for everybody to get involved…When actually it should just be left to those who had been charged with the execution to conduct it…Everyone can fight the tactical battle, but it should just be left to those who are currently fighting it…you could cut me out" (U.K.-30).

"We would not interfere unless it looked like we had information that the tactical commander just didn't have…being army officers, being action oriented personnel, [officers] wanted to do what they joined up to do. We found it quite hard...to resist" (U.K.-29).

"When we first got into the fight it was really hard for the brigade commander to not revert back to being a battalion commander and fight the fight" (U.S.-19).

"When it looked [on the UAV feed] like there were rounds either coming in or going out, there was a fire fight, I saw a lot of emotion and it was as if we were almost there" (U.S.-11).

"[T]hey're wising up the fight is not at a [the superior's] level, the fight is at the [subordinate] level. I think that's very hard for commanders to do…it's how we grow our leaders to really come in to lead, and they've got to lead something" (U.S.-07).

Shifting, drifting and *grifting* were all observed. One British Army officer captured the full extent of the change wrought by technology, empowering further and tighter superior control:

"On the first tour [in 2004], I think I was less concerned about issues that I didn't know anything about…I was quite happy to then find out sometimes days after the fact what had actually happened, what we've done about it, and I'd be back briefed at that stage. So in the intervening days of what was actually going on, I was thinking about the next problem frankly…I had very little tactical control over the actions that took place. [On the second deployment in 2007]…commanding two levels up by the stage, I'd be at battle command post as a staff officer, and much more involved in

minute-by-minute tactical action because I could see it happening, and therefore able to affect it…" (U.K.-29).

"I recall a situation where again the logistics patrol…two hundred kilometres north of our position, [that] received contact several times on the way to resupply the battle group. They still had to come back again. With the vehicle casualties and human casualties that ensued, they didn't have enough transportation to bring back everything that had to come back, and therefore it was a whole situation of what do you leave behind? …Probably a company commander-level problem, frankly, but actually being watched over by brigade headquarters. We relayed minute-by-minute suggestions to them purely because we could see what was going on. On the 2004 tour, probably a very similar situation happened actually, but I didn't find out until about two days after they had solved the problem" (U.K.-29).

6.3.2   Manager

"Half of the day we were going what are we doing, what am I doing here?" (U.K.-3).

With executives *shifting*, *drifting* and *grifting*, a loss of autonomy was observed at the managerial level. As technology alters information flow, I expected first to see information overload at the manager level, as managers seek to respond to executive's increasing requests by demanding more information from operators. With the potential for executives knowing more about operator actions than managers did, mid-level officers spoke of the challenge of maintaining the information asymmetry between themselves and their superiors (U.K.-25). With greater access to computers and other long screwdriver technologies, U.S. officers used the term 'information overload' more often than British officers:

"There was way more information than I could manage…for a person with twenty-four hour coverage to even go through…so you would spend a lot of time just trying to get good information" (U.S.-11).

"It's just there's a lot of reports and a lot of information…I don't think anybody's comfortable with it" (U.S.-17).

"It's hard to say that it's information overload because you're trying to get as much information as you can get. It's just your ability to manage it that results in overload…In trying to do a mission there's no such thing as too much information" (U.S.-08).

"Information overload was challenging for new folks like me out there because there was a wealth of knowledge" (U.S.-01).

"Information overload is definitely going on...The ability to produce products has exploded and then the demand flows from that" (U.S.-09).

"The second time there was a sense of information overload. I had a telephone a laptop, several desktop computers, a number of terminals. If you've got a large number of computers serving you, you end up serving them" (U.K.-12).

With multiple levels of command above them, mid-level managers noted that this created additional requests and increased costs as they sought to know the communication between the executive and operator levels. As discussed above, increased communication allowed superiors to lean forward and anticipate. It also allowed subordinates to lean forward and anticipate a superior's actions, producing additional costs:

> "The demand from the [subordinates] is always high…they want stuff before I even brief my boss…I sent it to them a lot…if I didn't give it to them [subordinates], they'd freak out and say 'I don't know enough'" (U.S.-03).

> "You get a request…somebody had the bright idea, or worse still somebody thinks that the next level up has a bright idea…you end up with just a ridiculous circle of information flying around" (U.K.-31).

Ex claudere controls: the effect of *grifting* on managers

The majority of officers reported being contacted and directed by executives higher than their immediate superiors; levels above were bypassed. For every one officer that stated he did not see superiors *grifting*, three officers witnessed it.

> "[2UP] had to find out what was occurring. He would interfere and barrage us with questions. Why are you sending out the patrol now? I think he was under a ton of pressure to find out what was going on" (U.K.-1).

> "MoD…would bypass [2UP and 1UP] and come down to me, so they would bypass about three or four chains of command" (U.K.-22).

> "I was dealing with [3UP]…who was specifically interested in what I was doing" (U.K.-27).

> "[3UP] would call us and ask us for updates, and they would bypass those two layers" (U.S.-10).

Mid-level officers reported a host of consequences of executive *drifting* and *grifting*, to being excluded from the decision making process, to creating redundant work as managers sought to condition what was reported to executives, to seeking to restrict information flows between operators and executives:

> "[2UP] shouldn't have been operating at my level…And when you act at my level, you create problems that I don't have the resources to solve" (U.K.-6).

> "[1UP might call you and say] You might get a phone call in the next thirty seconds from [2UP] here, this is what he's going to ask. Is there anything contentious that you're going to say? Let me know how it went and any issue that came out of it" (U.K.-12).

> "You may eventually do double work but it is better if you're ahead of the curve" (U.S.-17).

Officers especially noted when they were bypassed and excluded:

> "[When superiors would contact our subordinates] we had lost control of our own subunit" (U.K.-2).

> "There were people who would always try to jump the chain of command" (U.K.-24).

> "There was definitely a lot of that [jumping chain of command] going on…[1UP] would call the [2DN] directly and task them…[1UP] always thought there was a good reason" (U.S.-20).

> "[Superiors] have the ability to reach down and touch your squads and platoons, day in day out. It all can be done…Because they have the ability to reach down and touch people, they do" (U.S.-21).

Seeking to maintain oversight of their units, and relevancy in their jobs, officers remarked that they tried to "run interference" (U.S.-10) to determine what operators would tell *grifting* executives. Their insecurity about their position became apparent in their words:

> "I just had to establish what they [subordinates] had been told [by superiors]" (U.K.-27).

> "People were trying to keep information to themselves without letting it get out" (U.S.-10).

While mid-level officers observed their superiors contacting their subordinates, a reciprocal approach was not tolerated:

> "So while you were expected to use the chain of command yourself...[1UP] and indeed [2UP] would frequently speak directly to [individual soldiers]" (U.K.-30).

> "[2UP] could hear and see everything that we saw...If you don't want everyone to see it, tough shit" (U.S.-18).

Further, just as these officers could watch their subordinates' actions, they understood that *grifting* superiors could watch their subordinates' actions as well:

> "Anything I was watching my commander was able to watch…It influenced to a significant degree not only the planning and also the conduct of what we did" (U.K.-25).

> "Having higher headquarters on the same feed caused some problems. You've got dozens of folks watching, they were anticipating too" (U.S.-18).

> "The Pentagon asked for the feed…you can end up with as high as the Pentagon trying to command the company on the ground, if you aren't careful" (U.K.-31).

> "Now I know a lot of those feeds [of subordinate action] went directly to [2UP]…Then the phone would start ringing [from 2UP]" (U.S.-07).

Hierarchical redundancy

As hierarchies adopt network technologies, they typically eliminate levels of the hierarchy, with the mid-levels as the most likely candidates for removal. In the interviews, I asked which level of command could be eliminated. Three U.K. officers stated that each level of command was necessary. One stated:

> "In terms of the fighting piece that we were doing, the operational piece that we were doing, everybody from the army soldiers to the top man did the right thing. And because you never know where the point of value's going to be until it arrives" (U.K.-19).

However, the vast majority believed that some level could be eliminated. Two levels up and one level up were the most commonly mentioned levels for elimination:

> "My group headquarters in the U.K. [could have been eliminated]. That would have made us all happier" (U.K.-5).

> "I got the sense that some of them, certainly some of the more senior captains and some of the majors didn't really have that much to do…so people were looking at small crap…I think of it as a lack of employment" (U.K.-21).

> "The hierarchy has not been flattened. I am not sure what [1UP and 2UP] are doing" (U.S.-09).

> "I would have flattened the [2UP] at any minute" (U.S.-17).

> "I think without him [1UP] there we would have been more productive, and I generally don't think he added a great deal of value" (U.K.-16).

> "I'm not sure that level [1UP] works in high-intensity conflict" (U.K.-31).

> "I didn't know what they [1UP] were doing. It seemed to me that they were, in many instances, acting [at our level]" (U.S.-11).

> "Sometimes we wondered what are [1UP] doing for us that we aren't doing for ourselves?" (U.S.-19).

> "There's too many generals in Baghdad that results in…too much oversight…No oversight was common in the first deployment, and we actually got a lot done that way" (U.S.-05).

No officer mentioned a level of command subordinate to them as a candidate for elimination. U.S. officers attributed this to the nature of the fight in Iraq:

> "In a tactical sense there is really nothing that my battalion and brigade provided that helped my fight at the company level…It is really a company level fight executed by platoons and squads. There is no brigade or battalion level enemy" (U.S.-09).

> "With a [counterinsurgency] type fight…I don't think you need [senior officers] sitting around…I honestly don't know how much you need that in theatre. Maybe for the admin crap" (U.S.-21).

> "You need to increase dramatically down at the company level, within this specific fight" (U.S.-20).

Somewhat surprisingly, two officers serving in staff positions stated they could eliminate their own organizational level:

> "Well arguably it was my level of command [that could be eliminated] because [1UP] could speak directly to the [1DN]" (U.K.-30)

> "[O]ur level of command is extremely irrelevant" (U.S.-05).

6.3.3   Operator

> "Does Joe need a lightening link to a satellite, the space shuttle?…It ain't about connecting Joe to the space shuttle, it's about connecting Joe to the other Joes…The focus should be on what the guy needs to know in the one kilometre around you and not all this other stuff" (U.S.-09).[79]

I anticipated the most diverse effects of technology on the operator level, as the least experienced and youngest members of the profession were granted access to increased information and new lines of communication with executives. Where executives and managers often employed large staffs to handle increased information, I anticipated operators would experience information overload as they do not have support staff.

Officers experiencing information overload at the operator level:

> "You're trying to command a vehicle, fight a vehicle, and use machines on the move…we'd find if people sat down to use the computer they couldn't multi task. It was actually much easier to do it by voice" (U.K.-13).

> "It was like drinking through a fire hose…At some point guys on the ground would get overwhelmed…Information overload was a huge problem in the beginning" (U.S.-19).

Officers of both armies questioned just how much information should be available at the operator level:

> "I'm concerned. How much information can we give the guy on the front-line? Can we be giving someone too much information?" (U.K.-2).

> "[Subordinates] have limited resources. You can't flood [your subordinates] with massive amounts of information" (U.S.-09).

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[79] 'Joe' is a slang term of the U.S. Army, referring to a low-ranking enlisted soldier

Increased demands for information from both managers and executives distracted operators from their assigned task, producing the demand cascade predicted in doctrine:

> "Sometimes people in headquarters above you would see an e-mail and just go the brigade can answer that. And [then] the brigade guy would go maybe the battle groups can answer that. So it was just getting passed down and sometimes you'd sit there and answer two or three questions perhaps because somebody hadn't said, look, these guys are actually doing something else" (U.K.-19).

As the theoretical discussion explained, *ex claudere* control of managers could empower operators. Operators indeed spoke of bypassing their managers. *Grifting* is bi-directional— as executives connect with operators, excluding managers, operators may seek guidance from executives:

> "In company command, whenever we received mortar attacks and send the fire mission, we bypassed the [1UP] to speed things up" (U.S.-18).

> "In order to make something happen I had to cut out going through my [1UP] direct to the [2UP] officer…in my view it was going to be the only way that we would achieve the objective by short-circuiting the chain of command" (U.K.-18).

British officers noted that as clear lines of responsibility between levels of command eroded, unity of command became "quite blurry" (U.K.-22) where "you've got two chains of command" (U.K.-13) each with their own expectations and information demands:

> "The [3UP] was speaking to the [2UP], who was speaking to my [1UP], who was asking me as well for that information…so I was kind of getting it from all different angles to be honest…When it got slightly heated was when [3UP] staff came out directly to me, bypassing all the chain of command" (U.K.-16).

> "There are inevitably cases of two people in the same level of headquarters separated by a single wall asking [an operator] for exactly the same information at different times" (U.K.-17).

Increased communication could both increase and decrease operator autonomy. Officers expressed concern over the loss of operator autonomy as their decisions and actions were observed and recorded by managers and executives (U.S.-13; U.S.-14; U.S.-15) "based on a guy sitting in a room with a computer screen, but he knew better than I did" (U.S.-15).

> "If every radio set is being tracked around the battlefield, and every soldier's movement is visible on one screen to everyone, how much freedom does that give the guy on the ground? How much micromanagement comes in? I don't know. I think that's the fear from people on the ground" (U.K.-2).

> "[Commanders] can watch the guy down to the micro level…In the past there was always that level of not knowing. Now they know exactly what I am doing. Especially when you screw up" (U.S.-21).

Yet even once the technology was in place, numerous officers stated they preferred to use other mediums:

> "It's quite easier and more effective...to pick up the phone and just talk it out or make the effort to try to see someone face-to-face and sit down and try and decide what it is that's going to happen next" (U.K.-18).

> "Face-to-face and being there was a lot better...I would go talk to [superiors] and follow it up with an email" (U.S.-19).

> "If you wanted to get to speak with somebody for a specific purpose, you can't beat face-to-face…I would hunt people down because as we all know the difficulty with electronic traffic is it can be conveniently ignored, or it can be immediately forgotten about because people think that what is your priority is not the recipient's priority. But if you go in face-to-face at an agreed time, you can do so much more business" (U.K.-30).

6.3.4   Summary

> "I think people have tried to match the information systems onto their current structure…the current structures should be restructured in order to make allowances for the new information" (U.K.-31).

The evidence here largely confirms what was expected—nanomanagement influences superior-subordinate relationships in different ways, depending on which level was analysed. Nanomanagement increased executive control, decreased manager autonomy, and produced variable changes to operator autonomy. These changes speak primarily to effects of nanomanagement. No longer is it only the subordinate that can violate the delegation contract by choosing to shirk instead of work; executives may now *shift, drift* and *grift*. Managers can be retained and controlled by exclusion, an *ex claudere* form of control. Operators may be empowered by increased information and a blurring of unity of command, but they may also see their autonomy reduced as now multiple superiors may observe their actions and request more information. The tension of technology and hierarchy produces profound effects on superior-subordinate relationships.

6.4   Conclusion

> "Doctrine should be thrown out. Who gives a shit what we did in [19]89?...Tech should allow us to cut out huge parts of the hierarchy. Everyone doesn't need to know everything at all times" (U.S.-21).[80]

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[80] In the military, a term often heard is 'need to know' or the determination of whether "the intended recipient must have access to the information to perform his or her official duties" (U.S. Department of Defense, November 8, 2010, p. 257). If information is on a 'need to know' basis, this means that information should not be shared with everyone. The purpose of need to know information is to limit

Hierarchies allow for a specific type of control that manages information flow, restricts spans of control, and establishes a clear unity of command. The U.S. and British armies have adopted technologies but retained their traditional hierarchical form. This has produced effects throughout the organizational hierarchy. By analyzing actors at different levels of a hierarchical structure, this chapter sought to explain differing effects of nanomanagement on superior-subordinate relationships. While each hierarchical level faces a common challenge of information overload, this chapter argued that nanomanagement affects these different hierarchical levels and roles in unique ways, creating incentives for executives to nanomanage, existential threats to managers, and challenges and opportunities for operators.

For the executive, technologies enable them to monitor subordinates throughout the chain of command (*shift*), to direct action at subordinate levels (*drift*) and to cheat the hierarchy (*grift*) by communicating with levels beneath immediate subordinates. While executives bring a wealth of experience to a lower level of their organization, this comes at a large cost. These tools allow distant executives to focus on one action, at the peril of ignoring all other actions and the executive-level tasks they are chartered to perform. This may contribute to why the former Chief of the U.K. Defence Staff's stated that the military had lost "an institutionalised capacity for, and culture of, strategic thought" (Stirrup, 2009). The temptation to abandon strategic thought, to *shift*, *drift* and *grift* may be especially pernicious in a profession, where executives have progressed, and presumably succeeded, at lower levels of command.

For managers, technology that empowers executives comes at substantial cost to manager autonomy. The sub-categories of police patrols introduced in Chapter 5, especially long screwdrivers, enable *ex claudere* control, where executives can control managers by excluding them from their traditional role of managing operators. While exclusion reduces a manager's autonomy, exclusion does not obviate the manager's need to understand what their operators are doing. What results is a demand cascade of additional reporting, as managers scurry to maintain the information asymmetry and find out information about their operators before their superiors do.

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access, to protect information, to prevent people from thinking of things beyond their purview. The concern is that with modern technology 'need to know' has been replaced with 'everyone must know' and with that a need to act, think, and conduct oneself outside one's assigned role.

For the operator, technology allows access to previously unavailable information. These operators bear the brunt of the demand cascade as well as face the potential for decreasing autonomy, as superiors—both managers and executives—can now take action at the operator level. As their autonomy suffers, they will increasingly seek guidance for actions that they previously would have acted upon. Like executives, operators can also *grift*, bypassing their managers and seek guidance from executives, undermining unity of command.

How can a hierarchical organization retain its form yet adopt network technologies? The clearest path is to tread where business has gone before and eliminate positions now made redundant by technology. Elimination of function without elimination of position is one of the seeds of the cycle of nanomanagement. This would require policy and commanders at the mid and executive levels to accept fewer officers on their staffs. As the U.S. and British governments look to cut back on defence spending, an elimination of mid-level officers could be the place to start. This change would produce profound effects in each army, requiring assessments of future potential as promotion from operator to manager levels would necessarily require a much more austere promotion rate than 100%. Yet professionals should not want to be a member of an organization that lets everyone in, nor promotes the worst alongside the best. For an organization that accepts and promotes everyone is not exclusive, and cannot be considered a profession.

Of course, just as standards can be relaxed, they can be tightened. These changes are largely influenced internally; the last four chapters have explored factors largely within the control of actors inside an organization—its culture, use of *ex ante*, *ex post*, and hierarchical control. Yet could nanomanagement be caused by factors largely external to the organization? To complete this analysis of the causes and effects of nanomanagement, in Chapter 7 this thesis assesses two exogenous factors outside of the confines of the organization.

CHAPTER 7 Exogenous factors: uncertainty and accountability

The previous chapters examined the dynamics of superior-subordinate relationships within the walls of an organization. Factors—an organization's culture, the use of *ex ante* and *ex post* controls by superiors, and an actor's position within an organization's structure—were assessed to explain both the causes and effects of nanomanagement. Yet organizations do not exist in vacuums; they operate within changing environments and evolving societal conditions. Can conditions outside the organization motivate actors inside the organization to nanomanage? This chapter concludes the analysis by examining how two related exogenous factors—uncertainty and rising accountability—influence superior control and subordinate autonomy within an organization.

The first exogenous factor assessed is uncertainty. Wilson claimed that organizations were born out of uncertainty; through structuring various actors' roles and relationships, organizations provide a stable response to an unstable environment (2000, p. 221). Organizational structure helps actors see a chaotic world in an ordered way—one may not know what the next day will bring, but one knows their role, who their superior and subordinates are, and the requirements each needs fulfilled. Uncertainty external to the organization is countered by a certainty of role inside the organization.

Military organizations are formed to reduce the environmental uncertainty of warfare, defining roles to help manage the chaos and confusion of combat. When military command is seen as "an endless quest for certainty" (Van Creveld, 1985, p. 264), the amount of superior control and subordinate autonomy inside an organization can be seen largely as response to the uncertain environment of war.[81] Yet what occurs when not just the environment is uncertain, but one's role is uncertain as well? When external changes demand changes to internal roles, one should expect resistance—organizations tend to be conditioned to view the world in a specific way and are difficult to change. This study expands this understanding of how variable uncertainty—of both the role of actors and the environment—conditions superior-subordinate relationships.

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[81] As Chapter 4 explained, militaries, like other professions, sought to mitigate this uncertainty by training and preparing their professionals to master a field of abstract knowledge that they could then apply to uncertain environments.

Where uncertainty has been endemic to warfare, increasing accountability is thought to be a more contemporary phenomenon of the information age. Organizations large and small face increasing calls for greater accountability for what they do and how they do it. As accountability and transparency provide an alternative to self-policing, societies have increased the use of external audits and investigations to control organizations and make them more accountable (Power, 1999). Seeking to comply and demonstrate transparency, these organizations have increased their own internal monitoring and control systems (Power, 2000a, 2007). These audits, both external and internal, produce a rise of protocolization—an explosion of rules, standard operating procedures and regulations—that increasingly guide organizational practice.

External and internal auditors can now employ technology to know more about what is occurring inside an organization, complicating accountability and liability. If technology exists that allows the highest superior to monitor, track and record the activities of the lowest subordinate, must it be employed? If it is, what are the effects? If it is not, who is liable for subordinate misdeeds—the subordinate, or the superior who failed to employ all the available monitoring tools? In this chapter, both doctrine and empirical findings are used to assess whether in an environment of accountability, superiors must nanomanage both to avoid external audit and to reduce their liability exposure.

This case provides a unique opportunity to examine uncertainty and accountability for three reasons. First, the case captures variable uncertainty over time, both in the environment and in each actor's role. In Iraq, the invasion phase was characterized by the uncertain environment endemic to war. Uncertainty over the enemy (Would Saddam Hussein use the chemical and biological weapons he was believed to have? Would he destroy the bridges and dams across the Tigris and Euphrates?), the allies (Would Turkey allow the 4th Infantry Division passage through their country?), and even the weather (Would sandstorms impede progress to Baghdad?) influenced military decision making. Following the rapid invasion, this uncertainty over the environment persisted. Should the coalition dissolve Iraq's military? Where were the leaders of the Iraq regime? What type of government should be installed and what method should be employed to install it? As the insurgency began in earnest in the summer of 2003 and grew into what some characterized as a civil war by 2006, who was friend or foe?

Uncertainty also varied in the role each military officer performed. In the invasion, roles were largely certain. Officers performed tasks for which they had trained. However,

post-invasion Iraq was characterized with uncertainty over roles. Should soldiers deter looting? Should soldiers hand out food and water to civilians? Should an officer focus on developing Iraqi capability or on securing the Iraqi population? As the mission changed and officers groped for a role, their traditional and trained-for roles became uncertain. Over the six years of this case (2003-2008), units became more experienced. In this case, where other contemporary military engagements were comparatively short (e.g. the ground combat of the Gulf War lasted only 100 hours) or static (e.g. the peacekeeping roles in Kosovo), as individuals and units return for their second, third and greater deployments, best practices, standard operating procedures and a familiarity with the Iraqi environment increased. As environmental uncertainty decreased, roles became more certain over time.

Second, the case captures a unique timeframe of increasing external pressure, and internal need, to give account. In the run-up to the invasion of Iraq, public opinion and approval of the British and U.S. mission surged. As the conflict dragged on, casualties mounted, and prisoner abuse scandals covered the front pages in both the U.S. and Britain, support of the mission in Iraq fell. As discussed in Chapter 4, external trust is vital for a profession to conduct its business. The loss of external trust may create incentives for nanomanagement. The case provides a lens through which to understand how organizations respond to greater calls for accountability from external bodies. Just as the audit explosion leads to an audit implosion, with increased calls for the military to account for its actions to others, I anticipate increased calls for accountability within the military.

Third, this case provides a unique perspective on the influence of technology on uncertainty and accountability. Set within the broader societal context of the rising audit society in the U.K. and the increasing litigious society in the U.S., the armies that entered Iraq in 2003 possessed a dramatically different suite of technology than the armies of 2008. The case of Iraq from 2003-2008 provides an excellent lens through which to understand effects—how nanomanagement, as a response to environmental and role uncertainty as well as internal and external pressures for greater accountability, influences superior-subordinate relationships. Where the time of deployment mattered less in previous chapters, in this chapter the time of deployment captures these changing exogenous factors.

Section 7.1 will examine uncertainty, both environmental and role. Section 7.2 will discuss accountability, the changes to liability and the increased protocolization of work. Section 7.3 will then present evidence from the interviews. Section 7.4 will conclude.

7.1 Uncertainty

Organizations are formed largely to manage uncertainty, replacing the random actions and whims of free actors with structure, rules, order and discipline (Beck, 1992; Kale & McIntyre, 1991). The adoption of modern technologies affects the tension between those seeking to manage and eliminate uncertainty and those seeking to accept and plan for uncertainty. This section explores this tension by first introducing the theories surrounding uncertainty and then discussing the uncertainty endemic to war, and how this uncertainty is dealt with in the doctrine of both the U.S. and British armies. Armies use two opposing military strategies— one rooted in the writings of Sun Tzu, the other in Clausewitz—to combat the exogenous factor of uncertainty.

7.1.1 The influence of uncertainty

Uncertainty conditions each of the four previously discussed factors. Chapter 3 illustrated that organizational cultures vary based on traits, one of which is "uncertainty avoidance" (Hofstede, 1984) defined as "the extent to which ambiguous situations are threatening to individuals, to which rules and order are preferred, and to which uncertainty is tolerated in a society" (R. J. House, 2004, p. 602). For cultures intolerant of ambiguity, one expects to see increased rules, laws and technology employed to mitigate uncertainty (R. J. House, 2004).

Chapter 4 discussed how professional organizations trust their subordinates to act following selection, screening and training; this training allows autonomous subordinates to adapt to an uncertain environment. Trust is seen as an effective method of control (Bromiley & Cummings, 1992; Dyer & Chu, 2003; Le Grand, 2003) especially in uncertain environments (Dore, 1983). As experienced and trained professional subordinates perform in their role, the implication is that they will be trusted. However, as subordinates move outside this role into unfamiliar actions and environments they are trusted less (Mayer, et al., 1995). The discussion of costs and *ex post* monitoring in Chapter 5 showed that efforts to reduce uncertainty generated transaction costs to both superiors and subordinates. Technology that reduces uncertainty reduces costs only so far; the ideal is the self-observing and self-disciplining subordinate (P. Miller & O'Leary, 1987).

Chapter 6 illustrated how organizational structures vary with the uncertainty of actors. The management of uncertainty is seen as one of the main organizational maintenance tasks of executives who believe that "more information means less uncertainty" (James Wilson, 2000,

p. 228). Yet there is broad disagreement in how managing uncertainty influences actors throughout a hierarchy. Some believe that uncertain environments call for delegated decision making, where those further from the top must be empowered to make decisions (Alberts & Hayes, 2003; Lawrence & Lorsch, 1967; Weick & Sutcliffe, 2007). Others believe when goals are uncertain "more discretionary authority in an agency is pushed upward to the top" (James Wilson, 2000, p. 133), where decisions that were once made by subordinates should now be made by superiors (Staw & Boettger, 1990).

7.1.2   Uncertainty in warfare and doctrine

The degree to which organizations can and should reduce environmental uncertainty is the subject of much debate. Numerous studies have found that the greater the uncertainty of the environment, the greater the amount of information demanded by superiors (Galbraith, 1977; K. H. Roberts, Stout, & Halpern, p. 615; Tetlock, 1985). Superiors seeking more information encourage protocolization, promulgating rules, regulations and SOPs that systemize the production and flow of information. Wilson argued "[the SOP] is not the enemy of organization; it is the essence of organization" (2000, p. 221), yet rules can go only so far. Even the most exacting rules fail to produce a certain environment (March & Olsen, 2004, p. 10). Accepting that perfect knowledge cannot be obtained, and that efforts to do so are costly to both superiors and subordinates, organizations design systems that account for uncertainty in the environment by creating certainty in actors' roles (Bernstein, 1996, p. 229).

As war is "the most unpredictable of all human activities," uncertainty is widely discussed in military theory and doctrine (Coker, 2009, p. 174). The U.S. Department of Defense's Quadrennial Defense Review (QDR) published just weeks after September 11, 2001, called for "a new strategy for America's defense that would embrace uncertainty and contend with surprise" (U.S. Department of Defense, 2001b, p. III). 2006's QDR saw the operational environment "characterized by uncertainty and surprise" (U.S. Department of Defense, 2006b, p. vi). The 2010 QDR stated "[t]he United States faces a complex and uncertain security landscape" (U.S. Department of Defense, 2010b, p. iii). The U.K. Ministry of Defence's most recent Strategic Defence Review (SDR) went so far as labelling today "the age of uncertainty" (U.K. Ministry of Defence, 2010b, p. 4) in its title *Securing Britain in an Age of Uncertainty*.[82]

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[82] This uncertainty is enshrined in both armies' doctrine but with slightly different degrees of Clausewitz and Sun Tzu. The British Army seems more Clausewitzian: "No matter how much information there is in conflict, a 'fog of war' will descend that can lead to uncertainty" (U.K. Ministry of Defence, 2010a, pp. 3-2). U.S. doctrine recommends more of a Sun Tzu approach: "Good

Yet two of the fathers of military theory, Sun Tzu and Clausewitz, recommend diametrically opposed approaches to dealing with environmental uncertainty. Sun Tzu recognized uncertainty as pervasive, but recommended that commanders could obtain more perfect knowledge with greater information (Freedman, 1998, p. 318). In *The Art of War*, Sun Tzu recommended a commander request ever more information about himself, his forces and the enemy, seeing more information correlating directly to less uncertainty and better command in war (Tzu, 2007).

Clausewitz described a fog and friction in war between truth and report that contributed to the "great uncertainty of all data in War".[83] However a Clausewitzian approach sees more information would not necessarily help, and could potentially hinder, the commander. The collection, storage and analysis of additional intelligence may deluge the commander, adding to the friction of war (Handel, 1992). Clausewitz recommended commanders accept uncertainty and weigh the limited marginal benefit of additional information against the significant cost to obtaining that information.

In the modern era, one finds adherents of both a Sun Tzuian or Clausewitzian approach to uncertainty.[84] However the doctrine of both U.S. and British armies reflect a more Clausewitzian approach:

> "In contemporary operations, effort to reduce centralisation and increase decentralisation is especially important. A commander could retain a high degree of control himself, thereby reducing his own level of uncertainty, but he should aim to delegate decision-making authority to his subordinates, perhaps reducing his own ability to influence events directly. This will have the benefit of reducing uncertainty at lower levels and improving the ability of his subordinates to act and react themselves" (U.K. Ministry of Defence, 2010a, pp. 6-24).

> "Predictability is rare, making centralized decision making and orderly processes ineffective...leaders of forces in contact can often see and act on immediate opportunities and threats better than their superiors can. Delegating the greatest possible authority to subordinates helps the force

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leadership, flexible organizations, and dependable technology can lessen uncertainty" (U.S. Department of the Army, 2008, pp. 1-18).

[83] "The great uncertainty of all data in War is a peculiar difficulty, because all action must, to a certain extent, be planned in a mere twilight, which in addition not unfrequently—like the effect of a fog or moon shine—gives to things exaggerated dimensions and an unnatural appearance" (Clausewitz, et al., 1976, pp. Book 2, Chapter 2, Paragraph 24).

[84] Some early proponents of NCW and NEC saw technology as the chance to abolish Clausewitz and lift the fog of war (Owens & Offley, 2000). Other military thinkers warned about being transfixed with technology: "technological advances cannot eliminate ambiguity, uncertainty, chance, and the forces of chaos from the field of conflict" (Macgregor, 1997, p. 123).

adapt the operation to the situation quickly and retain the initiative" (U.S. Department of the Army, 2008, pp. 3-6).

While both doctrines recommend superiors accept a degree of uncertainty, U.S. Army doctrine recommends two solutions to reduce uncertainty—an information-focused solution, that reflects Sun Tzu's belief and an action-focused solution, reflecting Clausewitz. Stating that "Commanders use both," U.S. doctrine captures the trade-offs of these two approaches:

> "The information-focused solution reduces uncertainty at the higher echelons by collecting more and better data, and increasing the information processing capability at the top. This solution results in greater uncertainty at lower echelons because those echelons either do not have the information or receive it later than the higher ones. This approach requires greater control of lower-level commanders and more detailed orders."

> "The action-focused solution reduces uncertainty evenly throughout the force. Commanders train their organizations to manage and cope with uncertainty as part of normal operations. They delegate authority for decision making to those levels that can acquire and process the information adequately. This solution may result in less certainty at higher levels. The action-focused solution leads to more general, flexible orders and a more agile force. The information-focused solution may not be as efficient as the action-focused solution because even increased information collection does not provide absolute certainty. Although focusing information processing at the top can produce enough information to execute operations, it may cost the efficiency and time" (U.S. Department of the Army, 2003, pp. 1-11).

That an organization has competing beliefs and doctrines inside it returns to the discussion of culture in Chapter 3. As seen with the replacement of orders-based tactics (*Befehlstaktik*) with mission-based tactics (*Auftragstaktik*), organizations often are somewhere within a continuum of contrasting doctrines of what is best and right. As technologies are employed to nanomanage, and either succeed or fail, this results in varying degrees of adoption of a more Sun Tzuian or Clausewitzian approach.

7.1.3   Summary

Conditioning all previous factors of this study, in war environmental uncertainty is both endemic and variable. The desire to reduce uncertainty has been a common desire of commanders throughout millennia of warfare. One tactic to reduce this environmental uncertainty is to make roles certain. Military doctrine recommends two options to reduce uncertainty: an information-based choice of requesting ever more information that centralizes decision making, recommended by Sun Tzu; and an action-based choice that limits the amount of information requested and decentralizes decision making,

recommended by Clausewitz. This thesis next examines an exogenous factor more particular and pervasive in the contemporary environment—rising accountability.

7.2   Rising accountability

With the rapid defeat of Iraq forces, in May 2003, public opinion polls in both the U.S. and the U.K. reflected public approval of the Iraq War (IPSOS-Mori, 2003). As the insurgency began and casualties mounted, support in both countries eroded. Yet it was not until the spring of 2004, coinciding with the exposure of the prisoner abuse scandal of Abu Ghraib, was a threshold for support crossed—from 2004 on, more Americans would oppose the Iraq War than support it (Pew Research, 2008). In response to Abu Ghraib (and a similar prisoner abuse scandal involving British Army forces) numerous U.S. and U.K. governmental inquiries were initiated, seeking to have the military give account of their procedures. Whom, within the military and civilian chain of command, knew what and when consumed the time and attention of both the U.S. Congress and Parliament (Townsend, Doward, & Beaumont, 2005).

In testimony to the U.S. Senate and House Armed Services Committees, then U.S. Secretary of Defense, Donald Rumsfeld stated:

> "In recent days, there has been a good deal of discussion about who bears responsibility for the terrible activities that took place at Abu Ghraib. These events occurred on my watch. As Secretary of Defense, I am accountable for them. I take full responsibility" (U.S. Department of Defense, 2004).

Later in the testimony, a senator questioned whether it would have been better had Secretary Rumsfeld come forward earlier to hold those accountable. To this, Secretary Rumsfeld responded:

> "Well, Senator Collins, I wish I had done that…we're functioning in a — with peacetime restraints, with legal requirements in a wartime situation, in the information age, where people are running around with digital cameras and taking these unbelievable photographs and then passing them off, against the law, to the media, to our surprise, when they had not even arrived in the Pentagon" (Associated Press, 2004).

In the end, while eleven low-ranking soldiers were found guilty of various crimes, no senior U.S. officers or administration officials were found guilty for the actions at Abu Ghraib. The response to Abu Ghraib represents the complex, accountable environment in which the U.S. and British armies operated—decreasing public support of the Iraq War, increasing calls for external and internal accountability, technology that captures more information and can be communicated instantly and largely effortlessly both to internal and external superiors, and

questions pertaining to who is liable when something goes wrong. This section examines this complex environment of accountability and its related influence on the causes and effects of nanomanagement.

7.2.1   Accountability

The increasing demand for organizations and individuals to account for their actions is reflected in the dramatic increase of auditing (Power, 1999).[85] This form of accounting has its roots in the swelling use of rules and regulations for organizational control (Weber, et al., 1947; James Wilson, 1980), the adoption of 'New Public Management' techniques in the U.K. (Hood, 1991; Power, 2000b, p. 114), the expanded legalization of procedures and performance measures in the U.S. (Power, 2007; Radin, 2006; Sitkin & Bies, 1994a), and a overall decline in trust of institutions (Fukuyama, 1995; O'Neill, 2002, 2006).   Power (1999) dubbed this collective phenomenon the "audit explosion" empowering the external regulator to control organizations and by extension, the actors within. The rise of the external audit quickly led to the "audit implosion" and a dramatic adoption of internal monitoring and control systems (Power, 2000a). As a means to pre-empt external audit, executives, chartered with organizational maintenance, increased the transparency within their organizations (Power, 2000a).[86]

That auditing exploded as information technologies were increasingly adopted is no coincidence. O'Neill sees technology promulgating rules and regulations leading to "an endless quest for greater, faster and more precise accountability" (2002, p. 7). Technology does reduce the transaction costs of auditing (e.g. monetary, time spent), making it cheaper, faster and more precise. As digitization reduces storage and search constraints, audits became feasible as modern technologies "reduce[d] the cost of disclosing large amounts of organizational data to the public at large" (Hood, 2006, p. 217). These reduced transaction costs greatly benefited external auditors. Yet what was the cost to the audited organizations?

A fundamental cost of greater accountability is rooted in transaction costs theory. Greater accountability costs the auditor the time and resources spent fielding and analyzing an audit,

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[85] Auditing differs from our earlier discussion of monitoring: monitoring (what Power calls 'surveillance') focused on control of people while audits focus on control of organizations (Power, 1999).

[86] Critiques of the concept of an audit society or explosion (Bowerman, Raby, & Humphrey, 2000) centred on definitions and empirical evidence. Yet few doubt that contemporary public organization face greater external scrutiny for their procedures, structure, finances and their subordinates' actions.

and in the resources used complying with increasing information demands by those audited (Fukuyama, 2004). Increased accountability has three broad effects: first, what data is collected; second, what a subordinate reports; and third, what a subordinate does (Power, 1999, p. 13). First, in terms of what data is collected, technology creates an "empirical mood" that sees accountability based on quantifiable evidence (Power, 2007, p. 158). Advocates of performance measurement believe that all actions and activities of an organization can be measured and quantified (Radin, 2006). This places a value on numbers and the "quantitative presentation of accomplishments" that may not fully capture reality or what an agent did and how they did it (Radin, 2006, p. 240). As the qualitative is difficult to quantify and therefore audit (Schein, 2010), subordinates comply with quantification, distilling their efforts into metrics and data (Hubbard, 2010; Porter, 1995). Why trust a subjective assessment when "numbers replace trust"(D. Boyle, 2004, p. 35)? This quantification of qualitative effort is "intrinsically at odds with professionalism, since its aim is to reduce discretion as much as possible" (Freidson, 2001).

Second, increased accountability may influence what a subordinate reports (Prat, 2006, p. 99). This manipulation may be subtle, with mere degrees of emphasis and de-emphasis, or much more nefarious. Under persistent monitoring and auditing, subordinates can respond with delay and fabrication of records (Hood & Rothstein, 2001; O'Neill, 2002, p. 73; Schein, 2010). Examples of such fabrication include changing and manipulating records to meet the perceived desires of superiors (James Wilson, 2000, p. 228), failing to report news and information that may be negatively perceived by superiors (Williamson, 1992) and producing an "overall decline of candour" (A. Roberts, 2006, pp. 112-114). An increase in monitoring by superiors can produce "excruciating levels of accountability" where "verification increasingly substitutes for trust" (Schrage, 2003, p. 10).

Third, increased accountability may influence what a subordinate does, primarily through incentivizing subordinates to do less (Power, 1999, p. 147). With more accountability, operators face increasing risk that their actions will be known and that they will be sanctioned if they do not perform the task to standard (Arquilla & Ronfeldt, 1997c, p. 464; Leonhard, 1998). In these environments, documentation, as opposed to action, increases in importance (G.P. Huber, 1990; C. Wilson, 2004b, p. 222). Accountability increases the incentives to create audit trails, recording every communication with superiors to later justify

one's actions. These audit trails drive up transaction costs; as subordinates report more, they act less (Hood, 2006).[87]

7.2.2   Variants of accountability: liability and blame

As organizations become more accountable, deviant action is increasingly known and can be punished. As a result, an increase in accountability is related to an increased concern of liability (Sitkin & Bies, 1994b) and blame (Hood, 2002, 2006, 2011).   Liability is a major source of tension between actors across an organizational hierarchy conditioning what actors report and do where "[i]f the administrator is going to get into trouble for what an operator does, the former will find ways of making the decision for the latter" (James Wilson, 2000, p. 133). Liability generates "a climate of organizational defensiveness" which conditions what an actor reports, placing a premium on "rationalized approaches to show they have done everything that is reasonable because of fear of institutional sanctions" (Power, 2007, p. 11). By demonstrating due diligence, box checking, rules and procedures actors may report they "did all they reasonably could have done to foresee and prevent those loses" (Hood, 2011, p. 91). Emplacing these rules allows the most senior leaders to "transfer liability and risk" to subordinates (Hunt, 2003; O'Neill, 2002, p. 87). This protocolization reduces agent discretion "turning human functionaries into some approximation of robots" (Hood, 2011, p. 93). Actors take a defensive posture of risk aversion, caring more about avoiding and shifting blame to other actors and less about their delegated tasks (Hood, 2011, p. 5).

Liability and blame can be understood differently depending on the actor's position in the organizational structure. Hood's analysis of blame at multiple levels employs a military analogy of generals (i.e. executives), infantry (i.e. operators) and "all those who care to be found somewhere between the generals and the infantry" (i.e. managers)(Hood, 2011, p. 25). The executives possess resources to restructure organizations such that blame can be shifted down or out. As technology increases the ability for superiors to know, it subsequently increases their liability for not knowing. If technologies exist that monitor and record subordinate action and reports make subordinates more accountable, yet superiors

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[87] The threat of audit increases the rules and regulations under which a professional practices (O'Neill, 2002, p. 49). While professions seek to apply abstract knowledge, to fundamentally apply qualitative judgment to unique, circumstances, with a rise of accountability "subjective personal judgments are replaced by impersonal bureaucratic rules, which…are less effective and more costly to implement" (Fukuyama, 1995, p. 311). Indeed, a profession's autonomy makes it a more likely candidate for audits as "[a]udits exist to negotiate and represent the accountability of autonomous agents; if these agents were not autonomous audit would be unnecessary" (Power, 1999, p. 135; Shapiro, 1986, p. 212).

do not adopt them, superiors face the threat of being liable. Recent laws and trends in the U.S. and U.K. reflect: from CEOs, now liable for their content of their financial statements; to medical doctors, paying hundreds of thousands of dollars annually for liability insurance; to phone hacking scandals, where who knew what and when determines who is fired and who is retained.

The operators have few resources to shift blame but can more easily claim victimhood using ill-informed orders, vague procedures and policies to shift liability toward the top (Douglas & Wildavsky, 1982; James Wilson, 2000). They may also shift blame upwards if superiors interfered in decisions supposedly delegated (Hood, 2002, p. 30). As Weber (1947) saw rules and regulations used for control, the modern manifestation can be seen in automated programs that force operators to follow specified steps and decision trees. While these programs reduce the operator's discretion, they also allow the operator to blame the system when something goes awry (Hood, 2011). These same technologies that reduce the discretion of street-level bureaucrats may shift liability from the rule followers to the rule creators (Lipsky, 1980).

The managers can be caught in the middle, with blame "directed to them from top-and bottom-level players" (Hood, 2011, p. 35). Technology however allows them to shift blame (Hood, 2011, p. 129). One strategy that has emerged is 'locking in' or ensuring superiors are aware of decisions. By copying superiors on all emails, managers can ensure that they have an email record, with time stamp, proving that their superiors were aware of their activities, or their subordinates received the order by a certain time. Whether the email was read, analysed and understood is less important (Hood, 2011). Liability-minded subordinates now can produce the documentation, the read receipts and their own audit trail that can prove that their actions were conducted with full knowledge of their superiors.

The exogenous factors of accountability, liability and blame influence superior-subordinate relationships inside an organization. The next section demonstrates that the military also faced increasing accountability, reflected in the doctrine of both the U.S. and British armies as well as in the increasing presence and role of lawyers in combat.

7.2.3 Accountability in the U.S. and British armies

The doctrine of both the U.S. and British armies has long maintained that individuals can be held criminally accountable for their actions. Guided by the Law of Land Warfare, Geneva

Conventions, the Uniformed Code of Military Justice and other regulations, this personal liability is well discussed in doctrine. Both armies' doctrine emphasizes that in superior-subordinate relationships, subordinates are accountable to superiors while superiors are accountable for all subordinate actions:

> "While commanders can delegate authority, they cannot delegate responsibility. Subordinates are accountable to their commanders for the use of delegated authority, but commanders remain solely responsible and accountable for the actions over which subordinates exercise delegated authority" (U.S. Department of the Army, 2003, pp. 2-3).

> "A commander can devolve specific authority to subordinates to decide and to act within their own areas of delegated responsibility, but the overall responsibility is his…[Commanders] are responsible for how those under their command act and should not derogate that responsibility by failing to supervise…Accountability involves a liability and an obligation to answer to a superior for the proper use of authority and resources" (U.K. Ministry of Defence, 2010a, pp. 6-10).

While superiors are accountable for all their subordinates do, and fail to do, who is liable? In the last 10 years, U.S. Army doctrine remained largely consistent stating that "[c]ommanders assume legally established and moral obligations, both for their decisions and for the actions, accomplishments, and failures of their units" (U.S. Department of the Army, 2003, pp. 2-3).

Yet the past ten years has seen the British Army become more reflective of the times. In 2005, British Army doctrine did not mention liability associated with command. Yet in 2009, the U.K. court of appeals upheld a ruling by the High Court granting soldiers protection under the European Convention on Human Rights. British Army commanders would now be liable for failing to provide soldiers adequate equipment and "had an obligation to avoid or minimize risks to the lives of its troops" (Hurst & Bird, 2008). This increasing liability was reflected in the 2010 update to British Army doctrine, which introduced the concept of "Command Accountability" holding commanders "criminally accountable" for their subordinates' actions (U.K. Ministry of Defence, 2010a, pp. 2-13).[88]

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[88] "Individual members of the armed forces are accountable for their own actions on operations…Commanders have additional accountability in that they can be criminally accountable if they knew or ought to have known that crimes were being committed or were about to be committed and they failed to take all necessary and reasonable action to prevent or investigate them" (U.K. Ministry of Defence, 2010a, pp. 2-13). The key qualifier 'if they knew or ought to have known' is further complicated by information technologies providing further imperative to nanomanage subordinates. If soldiers are nanomanaged, do we lose a sense of individual accountability for their decision making (Coker, 2008) that forms the ethical basis of war (Cornish, 2006)? Does the word 'ought' imply that any technology available should or must be employed?

Scholars believed increased command liability within the military would manifest in different ways. Storr predicted commanders would "tend to be highly conservative…to allow subordinates little freedom of action…to seek precise direction from superiors" (Storr, 2002, p. 88). Others thought officers would be deliberately vague, diffusing responsibility such that it would be difficult to hold individual officers accountable (A. King, 2011; Ledwidge, 2011). Much of this debate continues as either tactic is difficult to observe and measure. Yet a tangible representation of increased liability within the military is the increasing proportion and role of uniformed lawyers.

The rise of military lawyers

Power sees increasing liability manifested in the growth of legal departments and roles of lawyers inside organizations (2007, pp. 111-112), and the military is no exception (Coker, 2008; Cornish, 2006; Martins, 2011; Myrow, 1996). Prior to the 1980s, military lawyers were rarely found in combatant headquarters.[89] Yet the 1977 *Additional Protocol I to the Geneva Conventions* for the first time obligated signatories to "ensure that legal advisers are available, when necessary, to advise military commanders" (Geneva Conventions, 1977). Whether in response to treaties (Yoo & Sulmasy, 2007), deviant soldier action (Borch, 2001) or international humanitarian law (Risius, 2005), the role of military lawyers has increased dramatically "from back-line staff officers to wartime advisors" (Yoo & Sulmasy, 2007, p. 841). In both the U.S. and British armies, legal officers (commonly referred to as judge advocates or JAGs) now deploy alongside commanders and are found in every major combatant headquarters (Kramer & Schmitt, 2008). Military lawyers are far more than simply present, but filling an active role "an integral part of operational planning" (Risius, 2005, p. 21).[90]

Reflecting this chapter's focus on how the environment conditions relationships, the nature of contemporary war has been seen as instigating the increased role of lawyers:

> "In a battlefield environment thick with media and nongovernmental organization scrutiny, every tactical event risks strategic consequences. Such transparency heightens the influence of legal advisers over choices made by commanders because the mere perception of an operation as unlawful

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[89] During the Falklands War, British Army military lawyers arrived in theatre only upon completion of hostilities and "the very idea that lawyers might have a role to play…would have been regarded with amusement" (Risius, 2005, p. 23).

[90] An interesting 'Burger King theory' emerged that as a theatre becomes more routine, more lawyers deploy, and a higher proportion of legal accountability is expected: "[i]f a Soldier can eat at Burger King, he is also more likely to face court-martial for any serious misconduct he may commit. If he is deployed somewhere without a Burger King, it is less likely that his misconduct will be addressed by court-martial. This notion, which suggests that combat zone courts-martial are rare except on stable, large, garrison-style bases, can be called the Burger King Theory" (Kramer & Schmitt, 2008).

(whether true or not) can hinder future operations, place troops at risk, and adversely affect the professional advancement of those involved. As never before, judge advocates are valued, and their advice heeded" (Kramer & Schmitt, 2008).

This increasing role has been codified in doctrine and practice. In January 2006, the British Army formalized an Operational Law Branch to provide "expert advice on the practical application of international law on operations" (U.K. Department of the Army, 2008a, p. 16) with the intention that "permanent formations should always have legal officers" (Risius, 2005, p. 30). In the U.S., doctrine now mandates that all plans, policies, directives and rules issued by a commander "are reviewed by legal advisors to ensure their consistency with [the DoD Law of War Program] and the law of war" (U.S. Department of Defense, 2006a, p. para 5.11.18). The role and importance of military lawyers in Iraq was reflected in the words of General David Petraeus:

> "Military lawyers were true combat multipliers in Iraq…we "threw" lawyers at very difficult problems and they produced solutions in virtually every case—often under very challenging circumstances and in an uncertain security environment…I tried to get all the lawyers we could get our hands on—and then sought more" (U.S. Department of Defense, 2007a, pp. II-9).

This increased number, role and presence of military lawyers did not occur without resistance. Scholars asked should "[a]rmy OPLAW [operational law] advisors sit through combat engagements in the operations center, monitoring tactical radio traffic for possible problems?" (Solis, 2007). Yoo and Sulmasy went further, stating that the presence of lawyers in command posts "interferes with the efforts of military commanders to achieve victory on the battlefield" (2007, p. 1836), that "the growth in JAG influence can have a detrimental impact on the nation's ability to win wars" (2007, p. 1836) and that the "unregulated deference to the JAGs has limited some combat operations, and will continue to do so" (2007, p. 1844).

7.2.4   Summary

The growth of auditing and drive for greater accountability is an external force that can influence how superiors monitor subordinates within an organization. Increasing accountability may also replace qualified judgement with quantification. Further, with increasing accountability, officers will be compelled to nanomanage—if they can hold subordinates accountable, they must. While rising accountability may be a more contemporary factor, it helps meet the endemic need to reduce uncertainty. I turn now to the empirical evidence, this case where variable uncertainty meets increasing accountability.

7.3 Empirical findings

This section presents the impressions of both armies' officers in regards to uncertainty and accountability. To explore uncertainty, I asked officers to assess the uncertainty of their role (e.g "How uncertain was your day-to-day?") and how they became more or less certain over time.

7.3.1 Uncertainty

During the invasion, officers reported being certain in their role, while the environment was very uncertain. They saw this relating to granted autonomy:

> "[During the invasion]…I had one hundred percent freedom to what I wanted to do …it's symptomatic of you being in a high intensity conflict. People actually have jobs to do…we didn't have time to be playing around with the computer" (U.K.-13).

> "In [the invasion]…everybody knew what their role was. Everyone knew what the command intent was, and everybody was significantly resourced, and there wasn't a requirement to get involved and change the plan" (U.K.-14).

> "We knew exactly what we knew we needed to do…[the invasion] was no different from what we trained for" (U.K.-21).

> "[During the invasion] was a tremendous amount of uncertainty. I think it gave us more freedom" (U.S.-18).

In the immediate aftermath of the invasion (2003), officers reported that both the environment and their roles become highly uncertain:

> "After the [invasion]…nobody knew exactly how to control the situation where we found ourselves in" (U.K.-11).

> "The whole concept of what we were doing drastically changed. So my job changed completely" (U.K.-10).

> "[We] would be doing things quite alien to what we'd done before…We haven't got a book for this...We were learning all the time" (U.K.-2).

> "[After the invasion] there was a general sense of looking for something to do" (U.S.-15).

> "The first tour was extremely dynamic because my mission changed mid-deployment…but it was discovery learning for the most part" (U.S.-05).

As the conflict shifted into a counterinsurgency fight, between 2004-2006, officers became more familiar with the environment but there was uncertainty over role. As a winning strategy was groped for, officers groped for their role:

> "There was theoretical understanding, but no real experience…We were making up processes" (U.K.-12).

> "Vagueness was kind of a nice luxury. But sometimes it's frustrating because you kind of have to make it up on your own as you go along" (U.S.-06).

> "We had to double-check everything, which probably meant that my boss had to double-check everything else and that my subordinates had to double-check everything else. We were all learning" (U.K.-2).

> "There was an element of micromanagement to a degree because it was a new role, a new task, and I don't think any of the levels of command had a good understanding of what this was really going to look like...So because of frankly mutual ignorance on everybody's part, you end up going down a level quite a lot to get a better understanding of what was happening at that level" (U.K.-12).

Beginning in early 2007, a new strategy of counterinsurgency was settled upon. By this time, most officers were on their second, third or fourth deployments. For those officers in the last years of the case (2007-2008) as the environment became more certain and officers had more deployments and more time in Iraq, they tended to describe their roles becoming increasingly certain: "It was really boring. Fairly certain" (U.K.-3), "mundane" (U.K.-9), "routine" (U.K.-20; U.K.-24; U.K.-26; U.K.-27; U.K.-29). As roles became routine and certain, officers observed increased superior control:

> "The second time the guys were a lot more rigid. You are to do this exactly like this. It was more specified. The first time there was a lot of crap going down but there was more humour. You had the freedom to make a mistake. The second time, if the guys made a mistake, they felt it. Of course when you live in that environment you can't make mistakes, well, that just isn't war" (U.K.-1).

> "The differences between the freedom of action we had [in the invasion] because people had roles and were focused on those roles...[on the second tour] where there was a great deal of micromanagement going on to be honest…we got close to mutiny" (U.K.-16).

7.3.2 Accountability

To explore accountability, I asked officers to assess the level of accountability, how it changed over time, how records were used to produce audits and whether they faced liability concerns. This section first examines this rise of accountability. This section then examines the proposed costs and benefits of increasing accountability—an increase in quantification, and changes to what actors do and what they report. With the increased

quantification, one should see a more formal protocolization of reporting. To highlight this change, evidence concerning a common report that changed over time—Iraqi Army unit assessments—will be offered. Finally, this section will discuss shifting blame and liability from the perspective of the surveyed officers.

British officers noted how activities on early deployments were largely done without generating reports and records:

> "I don't think there was much accountability [early on]" (U.K.-13).

> "My first deployment which was done on verbal [orders] without an audit trail of who had actually done what" (U.K.-30).

While a single British officer stated records were not used to audit his activities (U.K.-24) the vast majority of British officers saw technology creating a digital record—an audit trail. Some records were created and retained because of direction from superiors, but other officers reported creating or manipulating records to meet their needs:

> "I created my own audit trail...I created that because we were in an area that could be contentious in the future. I think information assists in clarification and in its absence invites a drama" (U.K.-25).

> "I deliberately made records and minutes of meetings, and sent them out to people to provide that audit trail" (U.K.-30).

> "I wouldn't use e-mail for anything other than something I wanted to keep a record of" (U.K.-9).

Some officers reported that they attempted a defensive strategy to 'lock in' superiors by reporting everything:

> "We followed the doctrine of no surprises and reported everything...often we reported something just for the sake of it" (U.K.-1).

> "We were keen to maintain a trail on decision-making, so if I would talk to [the superior], if I gave him a brief, he would want me to back it up with e-mail. Especially if he was going to forward it on for further direction" (U.K.-14).

> "[E-mail] would be sort of back-up with we agreed this, you said that, you know, recording information" (U.K.-30).

The costs of creating these audits were recognized in terms of manpower dedicated to the maintenance of a record and the increasing protocolization of work:

> "[We had two full-time officers whose job] was just to keep [everything] in order...it's a nightmare" (U.K.-31).

"Every two weeks it was probably 36 hours of work to get the right information [documented]...I think the whole process was a little bit of a farce to be honest" (U.K.-16).

"We spent maybe a fortnight writing policies, standing orders...minute detail and everything that was going to be operated on, and that was kept in the records" (U.K.-9).

"We ended up creating a massive audit trail. We spent the last six weeks of the deployment going back in the books and fixing accounts and filling in the details...There was always the threat of a big audit" (U.K.-13).

In asking what drove this need for greater accountability British officers noted the role of media and the instant transmission of low-level activities necessitated greater accountability:

"If we failed, then there would be sort of a high-level theatre-wide implication" (U.K.-23).

"[There is] the strategic corporal. A small incident on the ground can just create mayhem further up the chain. You know, one soldier letting off a couple of rounds can have strategic consequences...I think the commanders do watch very closely what's going on, and I don't go under the premises it's because he's got nothing else to do. I think it is because the consequences are so great really...Everything...has to be auditable, which is fine" (U.K.-31).

British Army officers spoke often about accountability, largely in negative terms, while U.S. officers, with access to far more technology, rarely mentioned increased accountability or the costs incurred. Multiple U.S. officers provided a potential explanation related to Chapter 3's discussion of culture—the use of technology to account and record was expected in the U.S. Army, indeed inculcated through training:

"Email was to verify what we talked about in the meetings. [I would] type up the notes just to remember what the tasks were. That was a staff habit. I would then [carbon copy] the staff to say this is what I heard...[Using email to document meetings] was part of our training...[email] was kinda a record to help get everyone on the same sheet of music" (U.S.-19).

U.S. officers commented they used recordings from drones to conduct after action reviews (AARs) to determine what should be sustained and changed.

"We would use those recordings for AARs...you can't lie and everyone knows that going in. Everyone sees people fucked up... Let's talk about it and get it out there and move on...We never used it as an investigation" (U.S.-21).

"We also used [the video feeds] for AARs throughout the deployment...I never saw it as somebody using it to go after somebody. It was a useful tool" (U.S.-18).

One shared attribute of officers of both armies was that accountability reflected in an increased preference on quantitative data:

"You've got to provide stats every day, you've got to have numerical data" (U.K.-5).

"Metrics were driving the train…the only thing that really mattered. The qualitative is accounted but is tied to metrics—number of patrols, number of bad guys killed and captured…Company commanders are pretty competitive. If your boss is pushing certain metrics, you are going to respond" (U.S.-09).

To assess how rising accountability and protocolization increases the preference for subordinates to produce measurable 'stats' and quantifiable metrics, I sought to explore the development of a single report—unit assessments of Iraqi Army units. The U.S. and British armies' units assigned to train the Iraqi Army were required to report progress in the training and capabilities of their Iraqi forces. Early in the period of study (2003-2004), these reports were largely self-generated and shifted between many formats. In later deployments (2005-2008) the assessment protocol was standardized into what became known as the 'stoplight' chart, and became more quantitative, moving from colours to percentage assessments. Figures 7.1 and 7.2 show the gradual protocolization of quantifying progress, from a unit's self-assessment (circa 2005) to a structured American led assessment (circa 2007).
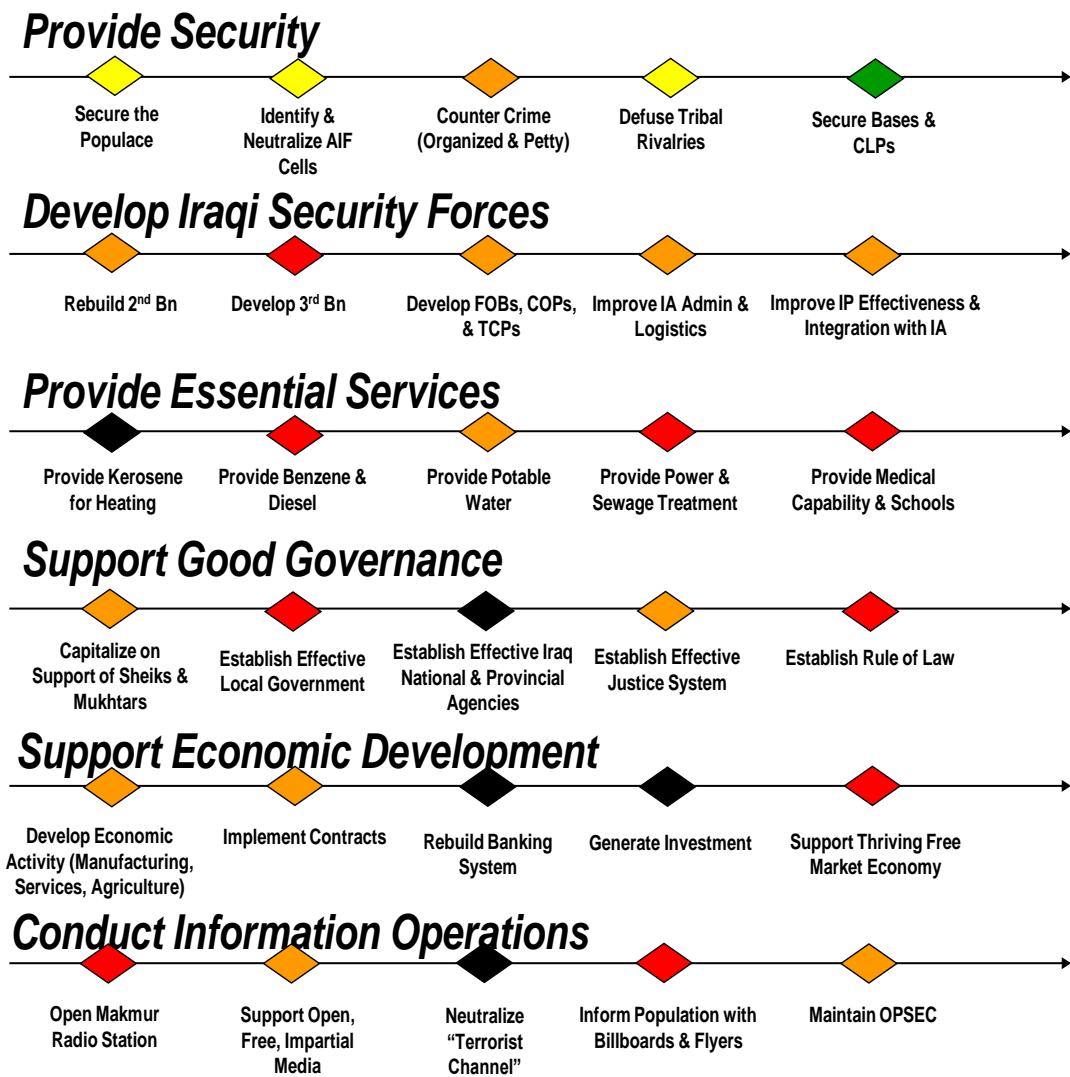
Provide Security

Secure the Populace | Identify & Neutralize AIF Cells | Counter Crime (Organized & Petty) | Defuse Tribal Rivalries | Secure Bases & CLPs

Develop Iraqi Security Forces

Rebuild 2nd Bn | Develop 3rd Bn | Develop FOBs, COPs, & TCPs | Improve IA Admin & Logistics | Improve IP Effectiveness & Integration with IA

Provide Essential Services

Provide Kerosene for Heating | Provide Benzene & Diesel | Provide Potable Water | Provide Power & Sewage Treatment | Provide Medical Capability & Schools

Support Good Governance

Capitalize on Support of Sheiks & Mukhtars | Establish Effective Local Government | Establish Effective Iraq National & Provincial Agencies | Establish Effective Justice System | Establish Rule of Law

Support Economic Development

Develop Economic Activity (Manufacturing, Services, Agriculture) | Implement Contracts | Rebuild Banking System | Generate Investment | Support Thriving Free Market Economy

Conduct Information Operations

Open Makmur Radio Station | Support Open, Free, Impartial Media | Neutralize "Terrorist Channel" | Inform Population with Billboards & Flyers | Maintain OPSEC

Figure 7.1 Stoplight PowerPoint chart from Iraq[91]

Figure 7.1 exemplifies early qualitative assessment. Qualified assessments grant subordinates broad autonomy but often generate questions from superiors. The advantage of colour schemes allows a superior a quick assessment of the status of the various measures. However, a disadvantage is the ambiguity from the same simplicity. In Figure 7.1, what does "Neutralize 'terrorist channel'" mean? Why is it black? What would it take for this to be rated red, amber and green?

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[91] *Source (Senior Army Reserve Association, 2008).*

TRANSITION READINESS ASSESSMENT

Unit: _____ Location: _____ Report Date: _____

Figure 7.2 Transition readiness assessment[92]

Figure 7.2 represents the much more quantifiable assessments that replaced the initial self-generated stoplight charts. The colour code is now derived from percentages and numbers, instead of an officer's qualitative opinion. Areas of focus are now clearly defined (e.g. 'Command & Control'), and a quantifiable assessment of unit level (Level 1-4) allows the entirety of the unit's assessment to be understood in a glance. Further, this quantification allowed a protocolization of progress across units in differing locations.

Where earlier assessments relied on qualitative write-ups, later assessments required detailed counting resulting in specific percentages (e.g. 78% assessment for detention operations). This drive for greater metrics meant that more officers spent more time quantifying and documenting their previously qualitative and undocumented activities:

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[92] *Source (D. Walker, 2006, p. 23).*

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> "[Iraqi unit assessments] took probably about a week to put together every month…" (U.S.-15).

> "[The commander] spent a lot of time developing those color coded formats of slides…There were ten million different formats…I'd come in and do it one format, and go and turn it in…and then somebody else would want it in some other format" (U.S.-06).

> "It was an American-led study that we had to traffic light the capabilities… that added significant amounts of work to what we were doing" (U.K.-16).

Both British and U.S. officers complained of having to quantify their assessment of Iraqi partner units:

> "We had a daily reporting requirement on what we had achieved following a red, amber and green icon. But what the bloody hell was red, amber and green?" (U.K.-1).

> "[My reports were qualitative] but the exception to that was the monthly reports, which I think were American driven…[quantifying] wasn't especially easy…So I didn't spend a huge amount of time doing it" (U.K.-20).

> "It's like a freaking homeland security thing, with lots of colors. But they also started to attach metrics. Those metrics were hard to measure, like are [the Iraqis] at 70% or 90%?" (U.S.-05).

> "I took exception to the format of a report…It condensed my battalion [into a single color] red, yellow, or green" (U.S.-15).

A common concern was that once an Iraqi Army report had been quantified at a certain level, officers noted it was difficult to reassess negatively:

> "If [the performance rating of an Iraqi Army unit a British officer was training] got worse, trying to justify where it got worse was a real issue. And we'd almost get told that it cannot get worse…And there was a lot of resistance to [downgrading a unit] because of our desire to continue our progression towards the green" (U.K.-16).

> "A couple of times we had to kind of modify our verbology…[Our commander] wasn't too bad until towards the end, saying I can't believe you're still reporting [the Iraqis] as amber" (U.S.-05).

A few mid-level officers saw this demand for quantifiable progress was tied to their superiors' promotion and evaluation:

> "[H]ow [the superior] was perceived amongst his peer group perhaps was what we felt was the driver behind it" (U.K.-18).

> "[The] commander would have a different opinion on [the Iraqi's] capability…He tied their efforts to [his performance] ratings versus being simply objective about it…[He would say] it was red when I got here, how can it still be red?" (U.S.-07).

"About five months before we came back, the colonel suddenly…got much more involved in the day-to-day, wanting to see improvements across the board…as he got closer to leaving his sense of not having completed everything he wanted to increased, so therefore his demand for information went way up" (U.S.-16).

7.3.3 Liability and blame

The increase in accountability corresponded to changes in liability and blame. Officers noted the role legal officers played in Iraq:

"The legal officer was there a majority of the time because you could call them in to cover your ass, frankly, and just make absolutely sure that your assessment was legally correct" (U.K.-29).

"We would send [an order] back to be checked by legal…[the orders] were checked, and advised, and re-written until it was right" (U.K.-9).

Both U.S. and British officers noted how the technologies discussed in Chapter 5 (trackers, drones and long screwdrivers) produced records that were used to determine liability and assess blame:

"Every time somebody fired their rifle...[the Royal Military Police] would come in and check the ops room transcripts, the radio net logs, the assessment report, the contact report, and other bits and bobs…they would also then check the e-mail trail to make sure that you sent this stuff up, or if you hadn't, why you hadn't. So if you hadn't sent something immediately, they would check why there was a delay" (U.K.-23).

"Whenever fatalities were involved, we went through [the UAV imagery] in absolute minutiae. I recall several occasions sitting almost for an enquiry going through an operation where somebody lost a life, trying to work out who did what...indeed [the video recordings] were used by the appropriate authorities for subsequent investigations as required" (U.K.-29).

"[We used] all the e-mail chains to say look, this is what I was asked to do...e-mail chains were used as evidence to prove whose responsibility it was, or who had done what action" (U.K.-16).

"[Superiors] knew exactly what we did…so we could record it back at our station and we could review the video tape...Every three seconds a snapshot was saved" (U.S.-20).

"Absolutely [documentation was used] in investigations…We had an accidental discharge [an inadvertent firing of a weapon] that resulted in a soldier's death. Everything was investigated, the emails back and forth between [commanders], what our SOPs were…Our culture has come to produce these records instinctively to have that CYA, that cover our ass mentality" (U.S.-19).

"I was friends with someone whose husband was seen shooting someone by a UAV…it wasn't really much of a second guess there. He walked up and shot

somebody…That was on record…He's in prison right now" (U.S.-10).

The technologies introduced in Chapter 5 demonstrated a profound effect on the costs of monitoring, resulting in more *ex post* control. These costs also extended throughout the organization, affecting the day-to-day activities as superiors sought to make subordinates more accountable. One U.K. officer captured the influence of technology on accountability:

> "I don't think [recording operations] influenced actions on the ground per se…Like it wasn't on everybody's mind the fact that god was watching and it was being recorded. However, subsequently once the task commander came back to the base location...we had voice reports and you had the CCTV footage as it were, and you could correlate the two. I sense and understand an unease from tactical commanders that they were going to be somehow caught out on what they reported...wasn't actually what actually transpired"

> "[W]hen you looked at the footage that was twelve levels removed and [you have the] luxury to go through it three times…that probably affected them [operators] somewhat actually…certainly any battle group commanders who lost forces out on the ground would get straight through brigade headquarters as soon as they got back in…they wanted to make absolutely sure that we weren't going to draw conclusions"

> "In one instance where a soldier lost a life there were some debates about the direction where the fire came from that killed the soldier. Now in that regard it was actually categorically proved that it was actually enemy fire that killed the guy. But there was an uneasy period for about four or five hours where there was some suggestion from the battle group that actually had been [fratricide]. Then luckily for the battle group they were able to prove that it was actually as the result of an enemy action [due to the footage]…clearly if they had just reported the action, and if the footage hadn't been available, we'd have quite happily accepted their reports and that would have been the end. But no, there were several staff officers plumbing through imagery for several hours trying to find out whether there was actually enough for launching an investigation into a real incident" (U.K.-29).

7.4   Conclusion

Nanomanagement is not conditioned simply by factors inside the organization. By examining exogenous factors, this chapter argued that factors outside the organization must be considered. An organization may have a stable trusting culture, *ex ante* controls that predict behaviour, *ex post* controls that monitor subordinates, and clearly established organization structures and defined roles. Yet when that organization is placed in a new environment—the uncertainty endemic to war, and rising accountability—these exogenous factors help explain both causes and effects of nanomanagement.

This case provided a longitudinal lens through which to examine how common actors and organizations adapt to both environmental and role uncertainty. In analyzing uncertainty over time, roughly four separate phases of the war—invasion (2003), immediate aftermath (2003), failing counterinsurgency (2004-2006), succeeding counterinsurgency (2007-8)—a relationship between these two types of certainty emerges. Much as a relationship between observed outcomes and outputs established a typology of organizations, the evidence suggests uncertainty, of environment and role, corresponds to Wilson's typology of organizations.

Craft organizations—When an organization is in a new or uncertain environment, but actors are trained for and certain in their roles, there is little cause to nanomanage. Superiors are certain on what must be done, subordinates are certain how to do it. Professions train for and prepare for these uncertain environments; superiors trust in their *ex ante* controls and depend on the training to guide subordinate behaviour through the uncertainty of war.

Coping organizations—When an organization is in a new or uncertain environment, but actors are not trained for their assigned roles, there is little ability to nanomanage. Superiors are uncertain on what must be done; without clear tasks and objectives, subordinates are uncertain as to what to do. While all actors figure out their role in an uncertain environment, there is little control exerted while little autonomy is granted.

Procedural organizations—When an organization is operating in a more certain environment, but actors are untrained and therefore uncertain in their assigned roles, there will be more cause for nanomanagement. Superiors are uncertain on what must be done; so are subordinates. Yet as the environment is more known, processes will be developed to capture as much information as possible in the belief this will assist in developing an organization's objective and purpose.

Production organizations—When an organization is operating in a more certain environment, and actors are trained for their assigned roles, there is the most cause for nanomanagement. Superiors are certain on what must be done; so are subordinates. Procedures and processes have become protocolized. Because the environment is certain, and the organization's objective and purpose is certain, work become routine, predictable and nanomanaged.

Figure 7.3 diagrams this typology based on role and environmental certainty/uncertainty.

	Role: Uncertainty	**Role: Certainty**
Environmental: Certainty	**Procedural Organization** **Iraq (2004-2006)** Role uncertainty Environmental certainty Superiors uncertain what needs to be done Subordinates uncertain how to do it More cause for nanomanagement	**Production Organization** **Iraq (2006-2008)** Role certainty Environmental certainty Superiors certain what needs to be done Subordinates certain how to do it Most cause for nanomanagement
Environmental: Uncertainty	**Coping Organization** **Iraq (May-Dec 2003)** Role uncertainty Environmental uncertainty Superiors uncertain what needs to be done Subordinates uncertain how to do it Little ability for nanomanagement	**Craft Organization** **Iraq (Mar-May 2003)** Role certainty Environmental uncertainty Superiors certain what needs to be done Subordinates certain how to do it Little cause for nanomanagement

Figure 7.3 A typology of organizations based on role and environmental uncertainty

This typology suggests but does not predict a relationship between role and environmental uncertainty. There were many exceptions to this typology; there was evidence of nanomanagement as response to uncertainty in the invasion and early years of the case. Yet in general, those in the later years of the case were more nanomanaged than those in the earlier years. This could be explained, as Chapter 5 attempted, to be an effect of more access to technology. Yet I cannot rule out that uncertainty, of environment and role, played no effect on motivating a superior to nanomanage or not. While the evidence is not conclusive, it appears the same technology that was thought to lift Clausewitz's fog of war, allowed a giant thumb of Sun Tzu's information-based approach to descend on mid-level officers.

Where uncertainty may better explain the causes of nanomanagement, increasing accountability may better explain the effects of nanomanagement.   Superiors, more accountable for their subordinates, will provide their subordinates with detailed direction in the form of SOPs, regulations and quantifiable reports. Subordinates, more accountable for their actions, will take fewer risks, seeking more guidance from superiors. For the actions that remain in the subordinate's purview, they will seek to create records of their actions that will be defensible.   Accountability places a preference for the quantitative, affecting what a subordinate does and what a subordinate reports. Nanomanagement makes quantifiable measures more preferable than qualitative judgements.

In Iraq, this was reflected in the increasing calls for mid-level officers to quantify their actions and reports. British officers spoke of creating audit trails of defensive documentation and of using modern technology not simply to improve operations but to determine fault. U.S. officers spoke of the need for documentation to learn from mistakes. This is puzzling, as clearly the U.S. had greater access to computers, trackers, drones and long handled screwdrivers—the tools that Chapter 5 predicted would enable superiors to nanomanage. This may reflect broader societal forces at play—the U.K. penchant for audit or that the British Army is a less trusted institution relative to the trust placed in the U.S. Army.

Rising accountability can be seen as both causing nanomanagement and producing more permanent effects than other factors. Once it is established that a superior can know, with greater accuracy, amount and speed, a bit or bob of data about subordinate outputs or outcomes, the superior must know. In an environment of greater accountability, superior-subordinate relationships do not return to their previous form. Instead of the analogy of an elastic band, the effect of technology that allows greater accountability is more like the ringing of a bell—it cannot be unrung. When external and internal auditors hear the bell, and know what can be measured and known, not only *will* superior-subordinate relationships become more accountable, they *must* become more accountable.

The preceding chapters have sought to integrate broad literatures to help explain the causes and effects of nanomanagement. In addressing culture, *ex ante* controls, *ex post* controls, an organization's structure and now exogenous factors, each chapter respectively discussed how technology is fundamentally altering supervision. The final chapter integrates these separate threads into a whole. What emerges is a logic of nanomanagement useful in determining the causes and effects of nanomanagement.

CHAPTER 8 The logic of nanomanagement

This thesis examined causes and effects of nanomanagement—*where superiors use technology to control, in ever-increasing detail, the actions of all of their subordinates*. Like the general in Baghdad, superiors may now observe their subordinates to a degree and detail impossible just a few years before. Through the perceptions of mid-level officers of the U.S. and British armies in the Iraq War, this case captured a unique moment of rapid technology adoption, a moment where much of the fog that long separated superior from subordinate lifted.

This thesis sought to view nanomanagement through multiple lenses—culture, *ex ante* controls, *ex post* controls, hierarchical structure, and exogenous factors. Each chapter allowed specific conclusions to be drawn concerning why nanomanagement occurs and how nanomanagement influences superior-subordinate relationships. With these approaches in mind, this thesis now seeks general conclusions. What causes nanomanagement? Is nanomanagement inevitable? What are its effects on superior control and subordinate autonomy? Are these effects permanent?

This concluding chapter begins in Section 8.1 by offering a holistic summary—a logic of nanomanagement. Section 8.2 discusses how the research design proved appropriate to exploring nanomanagement, identifies both contributions to theory and where additional research methods could prove beneficial, and then briefly examines evidence of nanomanagement in a wide variety of organizations. Section 8.3 concludes with a discussion of the future of nanomanagement.

8.1   The logic of nanomanagement

Through this thesis's analysis of five factors, a logic of nanomanagement emerges. This logic helps to explain both why and how technology influences the conflict between superior control and subordinate autonomy. Table 8.1 characterizes three causes and three effects of nanomanagement.

Causes of nanomanagement	Effects of nanomanagement
Cost	Increased *ex post* control
Uncertainty	Reversed information asymmetry
Self-interest	Undermined hierarchical control

Table 8.1 The logic of nanomanagement

The term 'logic' is not to imply that nanomanagement is correct or logical behaviour. However, the term 'logic' frames both why superiors would choose to nanomanage and nanomanagement's effect on superior-subordinate relationships.

8.1.1   Causes—why nanomanagement?

While the following conditions may help explain why a superior would, or would not nanomanage, none of these factors should be seen as uniformly deterministic. Indeed, the first two factors analysed proved inconclusive. The findings presented first in Chapter 3 suggest the relative lack of importance of organizational culture in determining why nanomanagement occurs or does not occur.   Despite a strong and inculcated doctrine of mission command in the British Army, British officers were just as likely to see superiors use technology to exert greater control. The findings of Chapter 4 suggest that an organization may invest heavily in *ex ante* controls and call itself a profession but neither prevents nanomanagement from occurring.

Despite an organization's culture or its professional *ex ante* controls, both armies' officers noted that nanomanagement was related to personality. Technology does not nanomanage people; people nanomanage people. Given the exact same conditions—the same organizational culture, profession, available technology, hierarchical structure and the same war—some superiors nanomanaged and others did not. We live in a world where nanomanagement is possible, perhaps probable, but not inevitable. When it does occur, the following logic helps explains why it occurs.

Cost

Superior-subordinate relationships are born from a cost calculus. Why hire a subordinate when one can do the task? Why do the task when one can hire a subordinate? With cost in mind, I expected the professional nature of the two armies, with their sunk cost of *ex ante* control, to resist nanomanagement. Instead I found reasons suggesting the opposite—that one may expect more nanomanagement in professions. As executives in professions are

promoted, rather than hired from external sources, they are perceived, and perceive themselves, as more experienced than the managers and operators beneath them. Unlike non-professionals, where executives must not necessarily serve at the operator and manager levels, executives in professions must rise through the ranks. Because superiors in professions seek to control levels of an organization in which they had previously served, nanomanagement exhibits less transaction costs. Further, executives charged with organizational maintenance have rational incentives to take greater control into their own hands and not allow third parties to expose shirking. The cost of fire alarms and police patrols are factored differently for superiors within professions, especially when trackers, drones and long screwdrivers may be used.

With prior studies in mind (Nagl, 2005; Sowers, 2005), I expected to find variance between the well resourced, technologically oriented U.S. Army, and the relatively resource poor, British Army.   In the initial years of the surveyed time frame, when the U.S. Army possessed technologies that the British lacked, this appeared to be the case. Yet as the British fielded technologies that enabled nanomanagement, it was observed that the British immediately used these tools to nanomanage. This suggests an answer to why nanomanagement: when one can nanomanage, one will nanomanage. Technology that offers superiors greater control at less cost will be adopted, used and employed.

When tools are available that decrease a superior's transaction costs while increasing their ability to control and observe subordinates, there are strong incentives to use these tools. While one should expect subordinates to resist technologies that increase superior control, if these same technologies reduce the subordinate's transaction costs, they will more likely be accepted. The difference of this cost calculus could be seen in the different responses to tracker, drone and long screwdriver technologies. Trackers and drones, which may reduce a subordinate's transaction costs, were more accepted; long screwdrivers, which invariably increased a subordinate's transaction costs, were resented. As these technologies improve, demands on the subordinate will increase. When a superior can nanomanage more at less cost, they will nanomanage more.

Uncertainty

Organizations are born from the desire to reduce uncertainty. The hierarchical military organizes such that actors have specific and certain roles that are meant to withstand the chaos and confusion of war. Role certainty is the antidote to environmental uncertainty. Environmental uncertainty alone should not be considered a cause of nanomanagement. I

cannot say if war, then nanomanagement. Even in the uncertain environment of war, if superiors are certain what tasks needs to be done and subordinates are certain in how to do those tasks there seems to be the least cause to nanomanage.   Yet the evidence suggests I can say the more certain the environment, the more cause for nanomanagement.

When assessing role and environmental uncertainty as variable, the case tracked the transition of these two armies through all four types of organizations in Wilson's typology—from craft, to coping, to procedural and finally to production. In the invasion, roles were certain and the environment was uncertain (craft). Superiors knew what needed to be done and subordinates knew how to do it. Subordinates were granted broad autonomy and there was little nanomanagement reported. In the fog of war, officers are certain in their role, a role for which they've trained, allowing them to predict and understand their part in an organization's response to complex events. Immediately after the invasion, roles were uncertain and the environment was uncertain (coping). Superiors didn't know what needed to be done and subordinates didn't know how to do it.

As the armies became more familiar with the environment, yet a failing counterinsurgency strategy was executed, roles remained uncertain (procedural). As environments become more certain, superiors may still not know what to direct their subordinates to do, or what metrics are important to measure, so they will measure all that they can with the belief that more information means less uncertainty. This phase was characterized by processes development (James Wilson, 2000, p. 228). Finally, with a successful counterinsurgency strategy in place, after years and multiple deployments both the environment and roles became certain (production); this phase was characterized by routine, quantifiable assessments and nanomanagement.

This suggests that *ex ante* controls do have an effect on nanomanagement, but only in a specific type of uncertain environment. Yet as more is observed and less is obscured, as environments and roles become more certain and more measurable, there is more cause to nanomanage.

Self-interest

Rational choices are born from self interest. There are few more rational choices than ensuring one's own preservation. This case captured a period of time where both armies sought to preserve their organizational autonomy and officers sought to preserve their individual autonomy; nanomanagement may be caused by both of these rational choices of

preservation. At the organizational level, both the U.S. and British armies faced increasing calls for transparency and accountability. Answering these calls is in the interest of the leaders of these organizations; not answering these calls leads to more external oversight and monitoring. The more a superior external agency wants to know about an organization, the more the leaders of that organization must know. Failure to employ available technologies to monitor or create an audit trail or to demonstrate transparency to increasingly suspect external actors, would be against the self-interest of executives seeking either to maintain their organization's autonomy or retain their position. If a tool exists where the superior could have known his subordinate's location and activities, and the tool was not adopted, the superior may be liable for not knowing. Because a superior can nanomanage, they must nanomanage.

Yet nanomanagement may also be motivated by the self preservation instinct of actors beneath the executive level. Calls for greater accountability by external actors produces a demand cascade within an organization. When hierarchical forms are retained but technology allows superiors to bypass levels of subordinates, it is in those bypassed actors' interest to maintain their relevancy to the organization. In response to an increased ability to demand information, Wilson and Sun Tzu agree—more information will be demanded as superiors believe that more information is better. Yet as superiors demand more information, those bypassed will demand more and more information themselves, "as a way of justifying their existence" (James Wilson, 2000, p. 228). Especially for mid-level managers, nanomanagement and maintaining some information asymmetry between themselves and their superiors, is vital for their self preservation.

Individuals and organizations seeking to preserve themselves may explain why nanomanagement is observed. Yet another form of self-interest based in utilitarianism—the maximization of pleasure and the avoidance of pain—may also be a cause of nanomanagement. For those doing the nanomanaging, nanomanagement is fun. Nanomanagement may produce happiness. Technology provides escape for those who have risen through the ranks. Instead of sitting through another dull briefing or struggling with the abstract tasks of budget and resources endemic to organizational maintenance, why not watch a UAV and fire a missile at the enemy? The growth of organizations and complexity of tasks have pushed executives away from the frontlines; now generals may lead vast armies, in real time, from air conditioned executive suites and auditoriums. The adoption of technology allows those generals to virtually push back to the front, to once again lead soldiers in combat, to pursue the enemy. This pursuit—of a simple task, that produces an

immediate measurable outcome—may simply be a pursuit of happiness and a cause of much nanomanagement.

8.1.2   Effects—how does nanomanagement influence superior control and subordinate autonomy?

This thesis sees nanomanagement producing three overarching effects: increasing *ex post* control, reversing information asymmetry and undermining hierarchical control. The large caveat to the below logic is that these effects must not be permanent. While nanomanagement disrupts these established norms of superior control and subordinate autonomy, it must not necessarily destroy them. It is still costly to conduct police patrols. The hierarchical structure of the military is remarkably similar today as it was in 2003. Organizations, especially conservative military organizations, are remarkably resilient. Like squeezing a balloon, the force of nanomanagement produces effects that may change the shape, appearance and look of organizations, making some parts momentarily bigger and others smaller. Once the pressure is released, organizations return to broadly, and sometimes exactly, the same shape. This evidence suggests this occurred with some factors; as superiors became more familiar with the technologies, they did not use them to exert ever more control.   Yet other factors had more permanent effects; with every year producing more and better technologies that allow the most senior superior to watch, direct and record the actions of the most junior subordinate, I expect we are only beginning to see the short and long term effects of nanomanagement.

Increased *ex post* control

Nanomanagement tilts a superior's preference away from *ex ante* control towards *ex post* control.   As nanomanagement allows superiors to observe more at less cost, three sub-categories of police patrols (trackers, drones and long screwdrivers) emerge. A tracker is a tool that automatically communicates information about subordinates to superiors, at little to no cost to the subordinate.   A drone is a tool that enables a superior to actively monitor and record a subordinate's actions. A long screwdriver is a tool that allows a superior to request increasing quantity and quality of information at greater speed, and to direct action at a distance and speed previously impossible.

When trackers, drones and long screwdrivers increase superior control at less cost, superiors will increasingly use these *ex post* controls. The preference, or dependency, on third party fire alarms becomes less cost effective. As *ex post* control costs reduce, the quantity and

quality of information requested by higher superiors increases. Both U.S. and British officers reported records were produced to create an auditable and defensible trail. Information was also demanded in increasing speed; numerous officers stated that reporting took preference to action. As the cost of *ex post* control is reduced, more aspects of work will be quantified, with metrics replacing qualitative judgement. What can be measured can be more easily nanomanaged. The case study of the stoplight chart, where quantification of effort supplanted qualitative judgement proved useful in illustrating how nanomanagement will force quantification of that previously qualified.

Increased *ex post* control does not mean the end of organizations that depend heavily on *ex ante* controls, such as professions. Technology that increases *ex post* control allows superiors within a profession to more easily demonstrate transparency and accountability to external audiences. Increased *ex post* control within professions may subsequently enhance the external trust central to professions. However, the same technology that may enhance professions—and by extension the autonomy of the upper-level professional—may produce the death, or fundamental transformation, of the low-level professional.

Reversed information asymmetry

With nanomanagement, the assumption of a persistent information asymmetry between superior and subordinate is no longer valid. Trackers, drones and long screwdrivers may reduce and in some cases reverse information asymmetry, where a superior may now know more about what a subordinate is doing, or has accomplished, than the subordinate.

The reversal of information asymmetry produces effects throughout an organization. Superiors, believing they know more, will believe they know best. Superiors will be tempted to exert tight control, to take over subordinate activities. Subordinates, believing that superiors know more, will do less. They will seek guidance from superiors for actions that previously they would have performed with their own discretion. As they look over their shoulder, or in the assessed case, up in the sky, they will take less risks, caring more that their now recorded actions are defensible first and effective second.

That a superior may know more about a subordinate's actions does not mean that more is "known". The subordinate already knows his actions and results. Every moment a superior spends observing or acting at subordinate levels is a moment not focused on the superior's level of action. That a superior may know more about a subordinate's actions does not mean that more is being actively monitored, just more is being controlled. Simply the potential

that a superior *could* know what a subordinate is doing increases superior control, modifying subordinate behaviour away from shirking, towards working.

Undermined hierarchical control

As nanomanagement alters information flow, span of control, and unity of command, traditional hierarchical structure and roles are eroded. An actor's position within an organizational hierarchy conditions the effects of nanomanagement. With nanomanagement, executives can *shift*, *drift*, and *grift*. By observing, acting and bypassing levels beneath them, organizations that retain hierarchies but adopt network technologies will find their executives involving themselves increasingly in subordinate actions. This comes at significant cost to the activities that executives are chartered to perform.

A nanomanaging executive functionally eliminates much of the need for mid-level managers, who are controlled by exclusion (*ex claudere* control). Executives may now know more about a manager's operators than the manager does. Intent on maintaining their informational advantage and subsequent relevancy, managers respond to executive *shifting*, *drifting* and *grifting* by increasing their information demands on their operators. Managers may find their critical role of channelling information flow upwards and downwards marginalized.

Operators may access increased information but may also suffer from a lack of unity of command. With operators having access to open lines of communication with managers and executives, they can bypass the chain of command and select from a menu of guidance. Operators face increased oversight with nanomanagement, as both their immediate and higher superiors may now be instantly aware of their activities.

Organizations that retain hierarchies yet adopt technologies that allow ever-increasing detail to be captured may enter into a cycle of nanomanagement. The exclusion of managers through *ex claudere* controls and the increase of executive *shifting, drifting* and *grifting* contribute to mid-level managers prematurely leaving the organization. While professional hierarchies are not easily flattened, this flattening by manager resignation may produce long-lasting detrimental effects. The case study of the mid-level officer exodus in the U.S. Army demonstrated the limited options available when two year old technology is inserted into two hundred year old organizational forms.

So is an effect of nanomanagement the end of hierarchical control? It would be far too hasty to discard an organizational model that has been replicated, tested and tried over centuries

of warfare. Few organizations could meet the challenge of recruiting, training and organizing hundreds of thousands of personnel, moving them and tons of equipment thousands of miles to fight and kill people without a hierarchical structure. Through the adoption of all these technologies, the hierarchy has morphed, adapted and persisted; there is little evidence to call for its near-term extinction.

8.2 Assessment of design, contributions to theory and future research

My selection of a single conflict (Iraq from 2003-2008) and actors at a specific hierarchical level (mid-level officers) from two armies (the U.S. and British armies) presented both advantages and disadvantages in analyzing the causes and effects of nanomanagement. This section assesses my research design as well as this thesis's contribution to theory, with both suggesting future paths for research.

8.2.1 Assessment of design

In assessing the causes and effects of nanomanagement, this study approached the same phenomenon from different angles. The factors I selected should be seen as extensive for a single work yet not exhaustive, providing a framework for expansion of the study of nanomanagement. Other factors could include fields as diverse as behavioural and organizational psychology as well as management and leadership studies. Another line of research would be to examine institutional design and compare how the superior-subordinate relationships within the military were predetermined by deck stacking in the U.S. and U.K. governmental systems.

This thesis also could have examined a specific moment of technology adoption (e.g. one unit on one deployment) or compared across multiple conflicts. However, because this study sought to capture the influence of information technologies on actors and organizations, a timeframe long enough to capture the short and medium term effects of technological adoption was needed. The choice of the Iraq War is unique in that the armies of 2008 differ significantly from the armies of 2003 in their level of technology. A comparative of the Iraq War with the Afghanistan conflict during the same time period (2003-2008), where Afghanistan was thought to be relatively poorly resourced with technology (Duffield & Dombrowski, 2009), could provide a rich path for future research. Additionally, a study of

military organizations that adopted and employed these technologies during the same time period, either in shorter conflicts (e.g. the Israeli Army's use of technology in 2006 and 2009) or by units in operations other than war (e.g. the U.S. Army's mission in South Korea), could prove insightful. Further, changing the unit of analysis from the individual officer to the organization, over multiple deployments, would provide another useful longitudinal comparison.

Complementing this line of future research would be a historical comparison between other critical inflection points where information technology was adopted on the battlefield (e.g. the adoption of the telegraph during the U.S. Civil War, or the use of wireless technologies by the British during World War I). This would be able to assess whether it was technology in general or the specific technology of the twenty-first century that produced these effects. Yet comparing across conflicts exposes studies to numerous intervening variables, possibly resulting in the inability to draw even tenuous conclusions. Focusing on a single case allowed me to identify and isolate factors during a unique period of technology adoption.

I selected mid-level officers because I speculated that they would feel effects of nanomanagement most acutely. This proved an appropriate choice—mid-level officers were nanomanaged, were themselves nanomanaged, and were excluded when their superiors nanomanaged their subordinates. Another beneficial approach would be to survey actors across the organizational hierarchy, capturing the simultaneous impressions of executives, operators and managers. Yet with experience at the operator, manager and executive levels (with many who observed executive behaviour whilst working on executive staffs), mid-level officers provided a perspective that allowed me to draw conclusions across the organizational spectrum.

Finally, comparing two armies allowed this study to isolate differences in beliefs in autonomy. Given more resources, this study could have included Australian, Spanish, Italian, Polish or South Korean forces, that all, at one point, had over 2,000 troops on the ground in Iraq. Yet these would only provide snapshots of armies with dramatically different missions and levels of technology adoption; their inclusion would fail to capture the steadily increasing role of technology. Limiting the scope of the case to the U.S. and British armies, coupled to the organizational culture similarities of these two armies, allowed for a measured comparison and internal validity.

A noted, and attempted, expansion of this study would include quantitative data. As Chapter 2 discussed, the initial research design sought to incorporate a mixed-method approach. A more limited discussion of factors would have facilitated the use of a survey. However, given the multiple deployments and relationships during single deployments, capturing impressions of culture, trust, monitoring, hierarchical relationships and the relative uncertainty of the roles and environments proved unwieldy in a single survey. Future work could overcome this by narrowing the surveyed population (e.g. all company commanders that served within a single chain of command during the length of a single deployment), or by focusing on a single factor. As I sought to capture a multitude of relationships, across time, across two different militaries, the qualitative method proved appropriate in what ultimately is a theory building thesis. Future research should employ quantitative data to test the concepts introduced in this study.

8.2.2   Contributions to theory

Numerous bodies of literature address and assess the tension between superior control and subordinate autonomy. This thesis relied extensively on Wilson's seminal work *Bureaucracy* (2000). Yet Wilson wrote of a military before nanomanagement; updating Wilson's concepts for the ever-increasing detail that characterizes twenty-first century control is where this thesis presents the greatest potential contribution. Wilson's typology of organizations, based on observed outputs and outcomes, predicts much of how organizations are structured and the behaviour of superior-subordinate relationships inside organizations. He saw the military falling into only two of the four types of organizations, depending on whether the military was at war (craft) or training for war (procedural).

Figure 8.1 updates Wilson's typology. In the case, the U.S. and British armies seem to have evolved, albeit at differing rates, through all four types of organizations. Observed outputs and outcomes still largely determine the four types of organizations. In addition, the environmental and role uncertainty as well as available technology help explain in what type of organization, under what conditions, more nanomanagement is likely to be observed.

Nanomanagement makes outcomes and outputs more known and observed. The findings of this thesis suggest a nanomanaged superior-subordinate relationship is most likely found in production organizations (see Figure 8.1). What does Wilson see as characteristic of the superior-subordinate relationships in production organizations? Superiors will be able to observe and measure both outputs and outcomes. They will prefer subordinates' work with

measurable outcomes over work with indeterminate outcomes. Work will not be considered professional. Subordinates will be under pressure to produce 'stats'. Rules and regulations will define the tasks. Superiors will have the most control and subordinates the least autonomy (James Wilson, 2000). This is consistent with those that see public administration gravitating towards more efficient, accountable and transparent organizations (Gregory, 1998; Gregory & Hicks, 1999; Hood, 2006; O'Neill, 2006; Prat, 2006).

	Procedural Organization Outputs observed/outcomes obscured High superior control Low subordinate autonomy *Ex post* controls—focus on process Role uncertainty Environmental certainty More cause for nanomanagement	**Production Organization** Outputs/outcomes observed High superior control Low subordinate autonomy *Ex post* controls—focus on efficiency Role certainty Environmental certainty Most cause for nanomanagement
	Coping Organization Outputs/outcomes obscured Low superior control Low subordinate autonomy Minor *ex post* and *ex ante* Role uncertainty Environmental uncertainty Little ability for nanomanagement	**Craft Organization** Outputs obscured/outcomes observed Low superior control High subordinate autonomy *Ex ante* controls—professionalism Role certainty Environmental uncertainty Little cause for nanomanagement

Left vertical axis: **Environmental Outputs (work)**, top: *Certainty / Observed*, bottom: *Uncertainty / Obscured*

Bottom horizontal axis: **Outcomes (results) / Role**, left: *Obscured / Uncertainty*, right: *Observed / Certainty*

Figure 8.1 Wilson's typology updated for an era of nanomanagement

This thesis should also prove useful for the various literatures reviewed. For the literature on culture, the unanswered question is whether technology alters culture or culture alters technology. Does new technology transform superiors into nanomanagers or simply provide superiors long sought tools of tighter control? Organizational culture, especially when determined by doctrine which may or may not be followed, is not as powerful a predictor of behaviour as some have suggested.

The most distinct cultural difference was observed in the role of technology and accountability. Where U.S. officers were accustomed to accountability as appropriate, British officers saw greater accountability as largely negative, describing environments more intent on assigning blame and producing audits than on the learning that Americans discussed. Was this because of the difference in the various national societies' trust of the military? Or was

this sourced from a focus on audit in the U.K. against performance measurement in the U.S.? Future research can and should extend beyond organizational culture, to examine how beliefs and practices of accountability, liability and control extant in a broader society influence how superiors control subordinates.

How nanomanagement shifts subordinates towards the measurable, quantifiable and bureaucratic work of production agencies, should be of interest to the literature on professions. Can a nanomanaged organization be called a profession? Can a nanomanaged individual be called a professional? While the literature speaks of technological advances making individual professions obsolete (e.g. the telephone reducing the need for professional telegraph operators), nanomanagement technologies threaten all professionals with obsolescence. This thesis has argued that when strict control replaces trust, when *ex ante* controls lose relative value to *ex post* controls, work may no longer be considered professional in nature.   As the cost of *ex post* control reduces, the logic of nanomanagement suggests the eventual decline of professional work.

Transaction costs theory should also benefit from the focus on *ex post* control. Chapter 5's discussion of sub-categories of police patrols contribute to the application of transaction costs to understanding intraorganizational behaviour. In general, this thesis supports Brehm and Gates' (1997) contention that to understand control of organizations, one must examine control within an organization. Trackers, drones and long screwdrivers call into question the belief that superiors prefer outsourcing their monitoring to other agencies (fire alarms) (Lupia & McCubbins, 1994; McCubbins & Schwartz, 1984). Technology reduces the relative cost of *ex post* control which should alter the stated preference towards these new variants of police patrols.

The discussion of *shifting*, *drifting* and *grifting* in Chapter 6 should also expand the concepts of discretion and control especially in relation to civil-military theory. It is not only the self-interested, guileful subordinate that may violate a delegation contract. Subordinates may still choose shirking over working; but nanomanaging superiors may now choose *shifting*, *drifting*, and *grifting* over delegating and monitoring or delegating and trusting. These activities limit the application of democratic control theory when looking at control inside an organization. When the superior is an elected body (e.g. Congress or Parliament) they have the right to be wrong, the right to *shift*, *drift*, and *grift* and actively control the military (Gregory & Hicks, 1999). With nanomanagement, superiors inside an organization

that do *not* draw their authority from direct election, certainly have the ability to violate a delegation contract. Whether that is their right is an open question.

Overwhelmingly, social science scholars have examined how, and to what degree, the military is controlled by civilians. While useful in discussing external interactions, a focus on interorganizational control limits the discussion and applicability of the wide and established literature on rational-choice influenced control theories, institutions, and transaction costs that seek to explain what occurs *inside* an organization. I hope this study provides a road map for future scholars to see that understanding control within the military may help inform civil-military control.

Finally, in terms of exogenous factors, the relationship between environmental and role uncertainty, and how this may condition behaviour within an organization should be useful for organizational theorists. Further, the observed defensive record creation supports patterns of blame avoidance and shifting as tactics of self-preservation in an increasingly transparent society (Hood, 2011). The evidence suggests external pressures for accountability can indeed instigate internal, pre-emptive calls for accountability (Power, 2000a). However, in Power's analysis, technology is more of a supporting player, crowded out by larger societal forces. In the logic of nanomanagement, technology that reduces costs and increases *ex post* control takes centre stage enabling a greater accountability. It is no small coincidence that the rise of the audit society corresponded to the dawn of the information age.

I am aware that the concepts introduced in this thesis, built from a single case, should not be considered the last word on the subject. Instead, I hope this study introduced terms that future research may test, expand, or refute. Despite being a military case, I anticipate the concepts described may strike a chord of familiarity in readers and other researchers, with a path for application to different organizations. This section concludes by looking briefly across other organizations for evidence of nanomanagement.

8.2.3   Evidence of nanomanagement elsewhere

While this discussion has focused on a single case, the logic of nanomanagement is not unique to the military or war. In societies that develop and adopt new technologies every day that capture ever-increasing detail, that see greater accountability and transparency as a normative good, leaders of both public and private institutions have strong incentives to

nanomanage. The quantification of work, the increased *ex post* control and reduced subordinate autonomy, the focus on efficiency—characteristics of production organizations and also effects of nanomanagement—can be observed across nearly all other professions.

In the medical profession, many doctors and nurses in both the U.S. (Ash, Berg, & Coiera, 2004) and the U.K. (P. C. Smith, 2002) are now mandated to follow computerized treatment systems and decision trees that guide the doctor's practice. When a physician's judgement dictates that they should provide treatment outside of what is prescribed in the decision tree, they must write extensive justification to clarify their reasoning, a transaction cost that did not occur to this degree prior to information technology adoption (Farkas & van Biesen, 2011). Physicians worry that these pre-determined systems will reduce the autonomy of new doctors and place more authority in the medical executives and managers that design and monitor the decision trees (Harrison, Koppel, & Bar-Lev, 2007; Southern California Evidence-Based Practice Center, 2006). In the U.K. these technologies are seen as eroding trust between physicians and their superiors (P. Brown, Alaszewski, Pilgrim, & Calnan, 2011). Critics charge that this monitoring fundamentally alters a physician's motivation, from a patient-driven model that depends on the individual doctor's judgement, to an economic-driven model that focuses on efficiency, quantifiable procedures and results (Adams & McConaghie, 2011).

In the legal profession, a suite of tracking tools has emerged that allow real-time monitoring of attorneys by their supervisors and their clients (Forstenlechner, Lettice, & Tschida, 2009). Applications now installed on many attorneys' computers track activities with "extraordinary specificity" monitoring websites visited, time spent on each application, and when emails are open read and filed (R. Boyle, 2011). Programs now exist that allow clients to automatically receive screen shots of the attorney's computer to account and verify for each six-minute billing increment. As digitization produces a record of attorney communications, attorneys have increasingly used chat functions that allow information to be shared without creating a permanent record that exposes them to liability (Church, 2004; Marcus, 2008).

In the academic profession, cameras have been being installed in classrooms in California (Freedberg, 2011) and in England (L. Clark, March 4, 2009) in order to evaluate the effectiveness of teachers.   Installed in dozens of schools in England, teachers can be given live feedback by their supervisor through a concealed earpiece. While headmasters have cited improved student performance as justifying the use of these monitoring tools (L. Clark, March 4, 2009), teachers complain of "diminished discretion for teachers" (Radin, 2006, p.

84), where "measurement then becomes more important than education" (Bradney, 2001, p. 10; Dill, 2000).

While nanomanagement may be most noticeable across professions, there is broad evidence that workers outside the classic professions have also felt the effects of nanomanagement. From race car drivers[93], to forest rangers[94], to prostitutes[95], the presence of new technology is influencing organizational structures, roles and superior-subordinate relationships. In nearly every type of organization, whatever potential for nanomanagement that exists today will grow tomorrow.

8.3   The future of nanomanagement

On the afternoon of May 1, 2011, the President of the United States did not like what he was seeing. Across one of the larger rooms beneath the White House's West Wing, he stared at two plasma screens. On one he saw the CIA director, who was approximately 11 kilometres away at CIA Headquarters in Langley, Virginia. On the other, he saw the commander of the Joint Special Operations Command (JSOC), who was approximately 11,000 kilometres away in Kabul, Afghanistan.

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[93] Historically, car racing involved a largely autonomous driver, relaying his impressions of the car's handling and performance to a waiting pit crew. Today, Formula One cars carry over 100 telemetry sensors, trackers relaying information to the pits and engineers at no cost to the driver's attention. Organized to processes this new flood of data, the hierarchy supporting a race car driver has exploded; pit crews of 18 are now supported by senior team officials with data screens beside the track, dozens of people monitoring computer screens at the back of the garage, and eight technicians in trucks in the parking lot (McKenzie, 2009). Technology has also displaced decision making from trackside to the English countryside. In 2006, the McLaren Technology Centre opened in Woking, England. No matter whether the race is in Kuala Lumpur or Monaco, with a staff of thousands that "primarily serve as mission control," teams of technicians employ supercomputers and monitoring technology to direct track side engineers to make adjustments to the car (Spurgeon, 2006). While the driver is still thought "to do the tactical thinking," data, supercomputers and technology thousands of miles from the steering wheel now form a key measure of whether a team wins or loses (McKenzie, 2009).

[94] Hebert Kaufman's *Forest Ranger* remains a classic study of subordinate autonomy (Kaufman, 1960). Yet in the past 50 years, the forest rangers have seen a general erosion of their professional discretion and autonomy (Koontz, 2007). Technology, from smoke detecting cameras, wireless communication and satellite imagery that can be monitored from afar has made much of the forest ranger's job obsolete, leading to reductions in the workforce (Greg Brown, Squirrell, & Harris, 2010).

[95] Traditionally, the sex trade industry operated with a hierarchy of 'superiors' standing between a prostitute and a client (Phoenix, 2001). Changes in technology have "have rendered [pimps] superfluous" (Venkatesh, 2011) where technology has contributed to developing a "professional and careerist" orientation amongst prostitutes (Murphy & Venkatesh, 2006, p. 131). Technology has driven this flattening of the sex trade hierarchy where "the Internet and the rise of mobile phones have enabled some sex workers to professionalize their trade. Today they can control their image, set their prices and sidestep some of the pimps, madams, and other intermediaries that once took a share of the revenue" (Venkatesh, 2011).

Yet the President thought there was something more vital to see than these two powerful men. He said "I need to watch this" then walked across the hall to a smaller conference room. In this room, Brigadier General Marshall Webb, an assistant commander of JSOC, sat at the end of a conference table, with a laptop open. At the other end of the table was another plasma screen, the only one in the White House that showed the black and white, real-time overhead feed of a raid in Abbottabad, Pakistan (Schmidle, 2011). As the Vice President, Secretary of State, Secretary of Defense, Chairman of the Joint Chiefs of Staff, National Security Advisor and a handful of other top aides crammed into the room, their eyes fixated on the screen.

For forty minutes, the President and his senior aides "could do nothing but watch" twenty-two Navy SEALs, an interpreter and a dog (Scherer, 2011). For forty minutes, the eyes and attention of the leaders representing the top levels of the United States' military and diplomatic power focused on the distant efforts of a few dozen men. Without knowing whether Osama bin Laden was in the compound and the uncontrollable variables of a raid deep inside Pakistan, the special operators knew much of this mission's final outcome was uncertain. Yet they could be certain of this—their actions would be relayed and viewed, in real-time, by their entire chain of command including the commander-in-chief, in a quantity, speed and quality unfathomable just a few years before (Martin, 2011).

Figure 8.2 The White House Situation Room on May 1, 2011[96]

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[96] *Source (Souza, 2011).*

The tension in the White House represented far more than the dramatic events playing out halfway around the world. On that afternoon, the tension between superior control and subordinate autonomy in an era of nanomanagement played out. As White House staffers "transformed the Situation Room into a war room", an aide asked Secretary of Defense Robert Gates how he would like the "command post" set up (Schmidle, 2011). Secretary Gates said, "No, this is not a command post. At the most this is an observation post. There will be only one direction of communication and that will be from the ground up" (Gates, 2011).

Gates' declaration was much more than semantics, but represented the conflict between superior control and subordinate autonomy. In military doctrine an observation post only observes. A command post directs and controls.[97] For forty minutes these superiors fixated on the raid, diverting their attention from the myriad of tasks they faced. Had this been a command post, a two-way information flow would have allowed the superiors to not only observe, but to direct and act.

Yet was this only an observation post? In the photo, the only figure not watching the screen is Brigadier General Marshall Webb, who seems to be typing. On his laptop were multiple chat windows connecting the White House to the ongoing discussions between other agencies and command teams in Afghanistan (Schmidle, 2011). Was Webb communicating only with his immediate subordinates? Was he relaying information up or sending down questions and guidance? Certainly the temptation was there, to ask questions, to make suggestions, to issue orders, to know details about outputs in a speed, quantity and quality impossible just a few years before. While this photo has been largely lauded, do we want our national leaders in rooms such as these? How many other scenes like this have occurred that may never be publically known? Would the exact same picture, the exact same activity be perceived differently had the raid produced a different result?

From the Secretary of Defense to the general, from the chief of surgery to the head of a law firm, superiors are deciding when, why, and in what degree to employ new technologies to control and direct subordinates. Management is the process of controlling people. Micromanagement is when superiors control in detail the actions of their immediate

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[97] In the military, an observation post is where junior soldiers are positioned to watch and observe for enemy activity so they can warn the larger group. Those in an observation post are not supposed to act, but to observe. A command post is "[a] facility from which a commander and his or her representatives direct operations and control forces. It is organized to gather, process, analyze, display, and disseminate planning and operational data and perform other related tasks" (U.S. Department of Defense, November 8, 2010, p. 66).

subordinates. Nanomanagement is different. Nanomanagement is *where superiors use technology to control, in ever-increasing detail, the actions of all of their subordinates*. By understanding nanomanagement, this thesis has sought to understand a contemporary battle in a long fought war between superior control and subordinate autonomy.

Nanomanagement is neither good nor bad. The costs of nanomanagement—to autonomy and discretion, to being trusted, to responding to the requests and demands of removed superiors—are real. These costs will grow. I imagine a reading of this thesis in 2020, 2040 or 2060 will look at the technology discussed here as rather quaint, the first drops of a coming deluge of tools that will allow ever tighter superior control. Tomorrow, more will be observed. Tomorrow, less will be obscured. However, the presence of these tools does not predict the manner or degree of their use. As seen in Baghdad and at the White House, individual superiors will continue to use their own judgement. By making determinations— of cost, uncertainty and self-interest—how much autonomy should be granted subordinates will vary.

For the benefits of nanomanagement are also real. While few individuals desire to be nanomanaged in their daily life, they may benefit when the individuals and organizations they depend on for their health, safety and security are more tightly controlled. A dissipation of the fog that permeates not just the battlefield but the muddy layers of bureaucracy separating executive from operator, or Secretary of Defense from SEAL, can be seen as a step towards a more known, transparent and accountable society.

Yet a brave new world of nanomanagement, where everything is observed and nothing is obscured, is not a certainty. Even if it momentarily arrives, its effects must not be permanent. History teaches that defeats and disruptions cause a re-examination of superior-subordinate relationships. With battles yet to be won and lost, the conflict between superior control and subordinate autonomy will continue to be contested.

This conflict is at the core of one of the oldest, and still unresolved, philosophical questions— whether humans truly prefer freedom or order. In societies that espouse liberty for all, nanomanagement is anathema to what many consider the correct way to conduct an autonomous life. Yet those same societies also promise justice for all. Justice implies control and requires transparency, accountability, rules and order. For those that seek more order, more justice, more transparency, more accountability in institutions of power,

nanomanagement may not just be a contemporary phenomenon, but the future of superior-subordinate relationships.

Appendices

Appendix 1: Initial Interview Guide

Phase I: Introduction, procedures and consent, disclosure of research project and approval.

Phase II: Demographics, background and Iraq experience. Biographical questions identified rank, branch, age, source of commission, educational background, and total length of service. Iraq experience questions focused on the number of deployments, the start and end date of each, the positions held in these deployments, the experience in these positions prior to deploying.

Phase III: Assessing monitoring. I asked, "How did you spend a typical day in relation to communicating with superiors and subordinates?" The purpose of this question was to get a sense of the work performed by the subordinates. It also allowed me to capture the richness of the command relationships the subject was under. I probed for the type of communication (email, face-to-face, radio, meetings, etc.) to determine the availability of information and technology and the physical distance between superiors and subordinates. I then asked questions concerning the physical separation between superiors and subordinates. Further probes included, "How did IT influence your work? Prior/during/following an operation, what sort of information was requested from superiors and subordinates? Did you see an example of inappropriate monitoring by superiors/staff?"

Phase IV: Assessing the environment. I asked, "How uncertain was the environment?" I then probed for uncertainty about the enemy, the populous and superior/subordinate units.

Phase V: Assessing professionalism. I asked, "How do you assess the level of trust? Why were you trusted? Why did you trust?"

Phase VI: Assessing hierarchy. I asked, "What was the least relevant command level and why?" I then probed to determine the level of command which one could eliminate and which would have the least impact on the mission.

Phase VII: Conclusion and clarification. I asked all subjects if they had anything else to add. Following the completion of their comments, I asked if there were any questions or concerns or points that needed clarification.

Appendix 2: Iraq Deployment Interview

Iraq Deployment Interview

Admin Information

Date: ID   Location:

Procedures

Thank you for taking the time to talk. Before we begin, let me explain the research project. This research is part of an academic study, partially funded through the United States Air Force Institute for National Security Studies and the Dean of Academic Research, United States Military Academy. This research is part of PhD studies at the London School of Economics and Political Science. While we have permission from [Dean of the CGSC/Dean of JSCSC] to conduct this research, we are not reporting to these offices or anyone else in the U.S. or U.K. military. Your answers will be confidential and anonymous. While the results will be used for the PhD dissertation and scholarly publication, your answers will not be specifically linked to you, but be grouped with your national peers. Instead of saying Major X stated, the term ["U.S. Major" or "U.K. Major"] will be used. The purpose of this work is to gain an understanding of the influence of technology and monitoring on your work. Your relationships with superiors and subordinates will be explored.

All interviews will be audio recorded. I ask that you refrain from specific identifying comments (names). If you or I feel that something has been said that could later be attributed to you, we will stop the tape. Do you have any questions? May I proceed?

START RECORDING

Biographical

SEX	RANK	BRANCH	AGE	SOURCE	ED	LENGTH
Male	O-4	IN	30-35	ROTC	College grad	9-12

Start		End		Position	Exp	Job
APR	2003	JUL	2004	Staff	1-2 months	BN S-1; humvee based

Start		End		Position	Exp	
APR	2007	JUN	2008	Command	>12 months	Stryker CO

How did you spend a typical day in relation to communicating with higher/lower?

Locations

How did physical distance from superiors/subordinates impact your mission?

How uncertain was the environment?

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Communication

How did IT influence your work?

Monitoring

Prior to an operation what sort of information was requested from above/below?

Appropriate? **Choose an item.**

During an operation, what sort of information was requested from above/below?

Appropriate? **Choose an item.**

Following an operation, what sort of information was requested from above/below?

Appropriate? **Choose an item.**

An example of an inappropriate monitoring by superiors/staff?

How do you assess the level of trust? Why were you trusted? Why did you trust?

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Past/Future Development

	None	Little	Some	Much	Total
Impact of technology on your work?	☐	☐	☐	☐	☐

	Sig less	Less	Same	More	Sig More
Past **deployments**	☐	☐	☐	☐	☐
Future **deployments**	☐	☐	☐	☐	☐

Least relevant command level? 2 levels up

Anything else you would like to add?

Thank you, may I stop the recording?

STOP RECORDING

Any questions? Concerns?

SAVE DOCUMENT

Appendix 3: Interview Consent Form

Date of Interview:_____**Location**:_____**ID**:_____

RESEARCH PROCEDURES
This research is being conducted to as part of a PhD study sponsored by the London School of Economics and the Institute for National Security Studies. If you agree to participate, you will be asked to provide information regarding your recollections of experiences in Iraq. The nature of the study revolves around your interaction with subordinates and supervisors. I ask that you refrain from including any identifying information (units, specific locations, names of subordinates or supervisors, any operational or classified details). If you or the investigator feels that you have inadvertently provided identifying information, the interview will stop, the recording will be erased and the interview will continue. Your answers will be recorded and be transcribed.

RISKS
There are no foreseeable risks for participating in this research.

BENEFITS
There are no benefits to you as a participant other than to further research in the study of the contemporary military profession.

CONFIDENTIALITY
The data in this study will be confidential. All data files and recordings will be password protected. Names and other identifiers will not be placed on surveys or other research data. For coded identifiable data, (1) your name will not be included on the surveys and other collected data; (2) a code will be placed on the survey and other collected data; (3) through the use of an identification key, the researcher will be able to link your survey to your identity; and (4) only the researcher will have access to the identification key.

PARTICIPATION
Your participation is voluntary, and you may withdraw from the study at any time and for any reason. If you decide not to participate or if you withdraw from the study, there is no penalty. There are no costs to you or any other party.

CONTACT
This research is being conducted by Major T.S. Sowers, Department of Social Sciences at the United States Military Academy. He may be reached at 845-938-3383 and Thomas.sowers@usma.edu. Please contact Dr. Thom Sherlock, Department of Social Sciences at the United States Military Academy for questions or to report a research-related problem. You may contact the Research Coordinator at 845-938-5902 if you have questions or comments regarding your rights as a participant in the research.

CONSENT
I have read this form and agree to participate in this study.   Yes__   No__   Initials_____

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