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ORGANIZATIONAL ECONOMICS
PERSPECTIVE**

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***INDUSTRIAL ORGANIZATION and
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ABSTRACT

Intelligence Failures: An Organizational Economics Perspective

Two recent failures of the United States intelligence system have led to the creation of high-level investigative commissions. The failure to prevent the terrorist attacks of 9/11 prompted the creation of the 9/11 Commission, and the mistaken belief that Saddam Hussein had retained weapons of mass destruction prompted the creation of the Weapons of Mass Destruction Commission. We use insights from organizational economics to analyse the principal organizational issues raised by these commissions.

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Two recent failures of the United States intelligence system have led to the creation of high-level investigative commissions. The failure to prevent the terrorist attacks of 9/11 prompted the creation of the National Commission on Terrorist Attacks Upon the United States (2004), hereafter called the 9/11 Commission, and the mistaken belief that Saddam Hussein had retained weapons of mass destruction prompted the creation of the Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction (2005), hereafter called the WMD Commission. In this paper we use insights from organizational economics to analyze the principal organizational issues raised by these commissions.¹

Intelligence systems face the same kind of tradeoffs that all organizations face. On the positive side, organizations enable the constraints of bounded rationality to be circumvented, so that more information (e.g., intelligence data) can be gathered and a greater variety of expertise can be used in its compilation and evaluation than any individual or small group could achieve. An organizational hierarchy enables the aggregation of information. Each agent processes a bit of information, summarizes what matters or combines it with other information, and passes the summary up to the next level. Hierarchy also enables experts' knowledge to be reserved for situations in which it is especially valuable. A bit of information from the field is, if routine, dealt with by a field officer. If the bit is unusual, it goes up the organizational ladder to a more knowledgeable officer who decides what action to take. Information that is truly exceptional continues up to the top of the hierarchy. This "management by exception" allows for the optimal matching of problems with expertise.²

We examine organizational problems involved in the three main steps in the process of generating intelligence: in reverse order they are intelligence analysis, intelligence sharing, and intelligence collection. A serious organizational failure at the analysis stage is "herding," or, as observers often put it, "group think,"³ in which the accumulated information and conclusions develop such a strong momentum that they cannot be successfully challenged. Intelligence analysis succumbed to "herding" in the virtually unanimous conclusion of the intelligence community that Iraq had weapons of mass destruction. An erroneous consensus of this kind may be due to organizational malfunctions, such as a poorly designed information and communication structure or a bad set of incentives for agents, but also, as we discuss, may be the unavoidable result of efficient but second-best design decisions. Second, erroneous conclusions can result

¹ For an overview of the economics of organizations, with an emphasis on incentive problems, see Gibbons (1998) and Prendergast (1999). An excellent textbook treatment is Bolton and Dewatripont (2005).

² For an early review of formal models of hierarchies as information aggregators, see Radner (1992). For a formal analysis of how hierarchies allow the knowledge of experts to be conserved, and of the conditions under which such "management by exception" hierarchies is optimal, see Garicano (2000).

³ Technically, in social psychology, group think (Janis, 1971) refers to a small-group psychological phenomenon that leads to consensus seeking in a group. We use the term in the more general sense used by both Commission reports of excessive agreement that does not depend on factors emphasized by psychologists.

when a pattern is missed because different pieces of information are not shared. This was a major factor in the failure to anticipate the 9/11 attacks. Third, an organization can be poorly designed to achieve a desired goal. The Federal Bureau of Investigation is supposed to both solve crimes and conduct domestic national-security intelligence, but it is designed for the former task, and because the organizational structures required for the two tasks are different, it does not perform the latter task well. We discuss these problems after a brief sketch of the existing organization of intelligence in the United States.

Two caveats are in order. First, while the organizational problems we discuss may have contributed to the recent intelligence failures, nonorganizational problems, such as incompetence of individuals, political pressures, and sheer bad luck (intelligence has a built-in failure rate because it is an endeavor to uncover secret information), may have been larger contributory factors. Second, our analysis suggests that organizational reform is likely to have only limited efficacy even addressed to genuine organizational problems. The reason is unavoidable tradeoffs. For instance, while our analysis suggests that decentralization of intelligence will reduce herding, it will also reduce sharing. However, the same ambivalence does not attend our analysis of the combination of criminal investigation and national-security intelligence; that combination seems a clear example of combining incompatible missions in the same organization.

An Overview of the U.S. Intelligence System

Before the Intelligence Reform Act of 2004, and dating back to 1947 with relatively few changes in between, the U.S. intelligence system consisted of 15 separate agencies, including several run within the Defense Department and dedicated to obtaining intelligence data through technical means, such as spy satellites. An official appointed by the President of the United States and called the Director of Central Intelligence (DCI) was responsible for coordinating all the agencies concerned with foreign intelligence. The agencies had (and have) overlapping functions; for example, the technical intelligence facilities owned by the Defense Department are also usable and used to collect political and other nonmilitary intelligence data, importantly including data concerning the activities of terrorists.

The Director of Central Intelligence doubled as the Director of the Central Intelligence Agency. The CIA's centrality lay in the fact that it controlled almost all the "human intelligence"—that is, spies—and also employed most of the intelligence analysts. It collected intelligence data both on its own (as from spies run by the agency's case officers) and from the technical and other intelligence agencies, analyzed the data, and provided the results of the analysis to the President and other high officials. Neither the CIA nor the DCI had responsibility for domestic intelligence, however; that was the responsibility mainly of the FBI, though the FBI was primarily a criminal investigation agency.

Under the Intelligence Reform Act of 2004, the positions of Director of Central Intelligence and Director of the CIA (DCIA) were split. The Director of Central Intelligence was renamed the Director of National Intelligence and given enhanced

budgetary, planning, and policy responsibilities along with an expanded coordination authority that includes domestic intelligence. He was not given line authority. His relation to the DCIA is unclear, but President Bush has said that the DNI will be the President's principal intelligence adviser, and not merely a coordinator. The Act is complex and ambiguous, and the precise limits of the DNI's authority remain to be worked out.

A long-standing proposal that the Intelligence Reform Act did *not* embrace is to create a domestic intelligence agency separate from the FBI, on the model of the United Kingdom's MI5 and similar agencies in other nations that have a long history of combating terrorism. MI5 is a "pure" intelligence agency in the sense of having no authority to arrest or to assist in criminal prosecutions; in contrast, the FBI is a hybrid, combining general responsibility for investigating all federal crimes with a national-security intelligence function.

"Group Think"

In the run up to the U.S.-led invasion of Iraq in 2003, virtually the entire intelligence system of the United States (and indeed of the world) held the mistaken belief that Saddam Hussein possessed weapons of mass destruction. In the 12 years preceding the invasion, "the Intelligence Community did not produce a single analytical product that examined the possibility that Saddam Hussein's desire to escape sanctions...would cause him to destroy his WMD" (WMD Commission, 2005, pp. 155–156). We shall examine several factors that may have contributed to this unwarranted unanimity of opinion. Except for the special case of group think that we call "herding," we argue that these factors reflect less organizational malfunctions than inevitable tradeoffs necessitated by efficient organizational-design decisions. Thus, group think may be rational *ex ante*.

Corroboration Versus Repetition: The Herding Problem

A key aspect of an organizational structure is the information network—who talks to whom and thus who passes information to whom. Analysts and consumers of intelligence often require several pieces of information that confirm each other before they will believe a particular claim. However, the stages by which a particular piece of information moves from its origin to the point at which it is combined with other information for purposes of analysis are often unknown to the analyst. He may not know whether what appear to be distinct pieces of information are truly independent corroboration or whether the same piece of information is being passed along through several different channels. In concluding before the invasion of Iraq that Saddam Hussein had weapons of mass destruction, the intelligence agencies relied heavily on information supplied by Iraqi exiles, some of whose reports came through the Iraqi National Congress (INC)—an umbrella Iraqi opposition group organized in the early 1990s that attempted to coordinate the actions of all the anti-Hussein groups. The reports contained similar findings, and this appearance of corroboration made them persuasive. It has since been learned that rather than reflecting independent sources of information, the reports probably originated from a single source—the Iraqi National Congress itself (Reiff, 2003; Dwyer, 2004; Jehl, 2003; Isikoff and Hosenball, 2004). Similarly, all the data concerning the issue of Iraq's possession of biological WMD, except for two corroborating reports (one from INC

sources), originated from an Iraqi defector codenamed “Curveball” who claimed to have worked in Iraq’s bioweapons program. But the problem is general: “For most reporting, there is currently no way to determine from the face of the CIA analyst’s report whether a series of reports represents one source reporting similar information several times or several different sources independently providing the same information” (WMD Commission, 2005, p. 178).

In the economics literature, a problem of herding is said to arise when a rational agent decides that a (coarse) body of public information outweighs his own contradictory private information (Banerjee, 1992; Welch, 1992). Imagine individuals who can observe a private signal on the quality of a restaurant and also observe each other and who are trying to decide between going to restaurant *A* and to restaurant *B*. Individual 1 chooses *A* at random. Individual 2 has a private belief that both restaurants are equally good, but since 1 chose *A*, 2 goes to that restaurant as well. Individual 3 now has three pieces of information—the actions of 1 and 2 and his own opinion. Since both 1 and 2 went to *A*, 3 may well decide to do so as well because it appears that there is substantial evidence that *A* is a better restaurant. This herding, or information cascade, occurs because each individual is rationally weighing evidence he’s received that seems to be based on several individual judgments against his own first-hand information and acting accordingly. Yet herding can lead to a situation in which everyone is wrong, or, more generally, to a consensus that is far less epistemically robust than the sheer number of adherents to it might suggest.⁴

A herding problem can arise when intelligence analysts confront a consensus judgment based on many sources. Unbeknownst to the analyst, the judgment may be based on the same ultimate source but may have been communicated to the analyst through several channels. The recipient may therefore be acting rationally in agreeing with the consensus information even if it contradicts his own information, since he has only one data point while the information that he is receiving from multiple sources consists of at least one data point and possibly of many. This effect is amplified if analysts systematically underestimate the likelihood of repetition (De Marzo, Vayanos and Zwiebel, 2003).

One way to reduce the risk of herding might be to attach an encrypted tag to each source. Different agents with different levels of security clearance would be able to decipher different amounts of the tagged information. For example, only a handful of officers with a very high clearance level would be permitted to learn the name of the source, but officers with lower clearances might be permitted to learn from the tags on other intelligence whether that intelligence had come from the same source.

Incentive problems

⁴ The literature on “rational” herding is large, and the brief summary in the text cannot do justice to it. For an overview in this journal, see Bikhchandani, Hirshleifer, and Welch (1998). Another literature (Scharfstein and Stein, 1990) studies how herding can result from the effort of agents to distribute blame by signing on to the office consensus. The two types of herding are connected in Ottaviani and Sorenson (2000).

Career incentives can encourage herding. When an employee's career depends on evaluations by his superiors, he will have an incentive to echo his superiors' opinions (the "yes man" phenomenon (Prendergast, 1993)) and also not to update his prior beliefs, lest it make him appear unreliable (he changed his mind—an acknowledgment of error). In effect, the analyst herds with his own prior judgments. The tendency is greater with more experienced managers because they have a longer track record, meaning that any bold departure they make is more likely to contradict a position they've taken in the past. Only if they can credibly claim that their information is new can they change their minds without losing reputation. The need to be seen to be consistent plays a role even at the agency level. The CIA defended the Curveball intelligence long after it was discredited, fearing how an acknowledgment of error would look to senior management at the CIA and to policymakers (WMD Commission, 2005, p. 107). Avoiding these biases may require shifting agency managers regularly, so that they are not bound to previous forecasts and analysis. But this is not a panacea; new managers may take positions that are *too* bold, in order to signal that they are well informed (Prendergast and Stole, 1996).

In light of these considerations, it is not surprising that intelligence managers are reported to have rewarded judgments that reflected the consensus view that Iraq had WMD programs, and penalized judgments that did not (WMD Commission, 2005, p. 191).

Still another incentive factor is that the intelligence officer may just take the easy path and adopt the opinions of co-workers as his own. If accurate information is difficult to recognize as such, there will be difficulty designing a system of rewards for producing it. An adversarial system, in which "red teams" are assigned to advocate views that challenge the office consensus, may be useful, although at a cost in concealment or manipulation of information (Dewatripont and Tirole, 1999).

Given the "yes man" phenomenon, *overt* politicization of intelligence—that is, direct pressure from superiors—is not required for intelligence estimates that conform to political superiors' possibly erroneous preconceptions to be produced. All that is required is that career rewards depend on performance evaluation by superiors and that the biases of superiors be known to their subordinates. Since intelligence performance is inherently difficult to measure, subjective evaluations are unavoidable.

Centralization of the intelligence system is likely to exacerbate the "yes man" problem by creating a tighter hierarchy,⁵ whereas in a system in which there are many bosses, even if the subordinates of each one echo his views there will still be many different views, though only if the bosses have different preconceptions. Even if they do, moreover, we must be careful to identify who the ultimate bosses are. They are not the heads of the intelligence agencies, but the President and other top policymakers, and if they have homogeneous views, then the fact that the intelligence system is decentralized cannot be relied on to produce a diversity of views; *all* the agency chiefs, whatever their private views, will have an incentive to conform their advice to the policymakers'

⁵ The most dramatic example in intelligence history is the Soviet Union's failure to anticipate Hitler's invasion in 1941. Stalin was strongly convinced that Hitler would not invade, and his subordinates were too terrorized by him to buck his opinion, though they knew he was wrong. See Murphy (2005).

preconceptions. Thus, before the Iraqi war, intelligence officers knew that the policymakers were convinced that Iraq possessed weapons of mass destruction. The Department of Energy, however, doubted a key datum that had led other agencies to concur in the policymakers' belief. According to the WMD Commission (2005, p. 56), "The Department of Energy (DOE) assessed that the tubes 'were not well suited for a centrifuge application' and were more likely intended for use in Iraq's Nasser 81 millimeter Multiple Rocket Launcher (MRL) program." The Department of Energy relied on a separate piece of evidence, doubted by the other agencies, that Iraq was seeking a nuclear weapons program. The WMD Commission (2005, p. 75) believed that the Department was reluctant to buck the consensus view concerning Iraq's WMD capabilities, a position that "made sense politically, but not substantively."

False Positives Versus False Negatives

"Group think" may also be the result of an efficient organizational-design decision. The organization may be rationally designed to filter out most information on the way to the top of the organizational hierarchy in order to economize on the time and attention of senior management. In an organization that contains multiple layers of hierarchy in which experienced supervisors review information, ideas, and judgments coming to them from lower levels in the organization, fewer mistakes are committed that result from accepting bad ideas or judgments, but at the cost of mistakenly failing to act on sound ideas. Looser, less centralized organizations filter out fewer ideas and thus produce a more diverse set of options for the leaders of the organization to choose among.

Which type of mistake is more harmful depends primarily on the organization's environment (Sah and Stiglitz, 1986). When the environment is unstable, the organization should be decentralized in order to maximize the likelihood that many fresh new ideas will be produced, for that will make it easier for the organization to adapt to a changing environment. When the environment is stable, in the sense of changing slowly, so that adaptation is achievable by incremental adjustments, the organization should be designed with many filters so that the errors that are made are of the type "a few good ideas were not tried out" rather than "we went ahead with some terrible ideas and damaged our franchise." 3M is an example of a business firm that has successfully implemented a "more ideas are better" strategy. The firm is decentralized and provides its employees with ample discretion. It has a culture of forgiving failure and allowing individuals to buck senior management in pursuit of what may look like unrealizable ideas (Bartlett and Mohammed, 1995). In contrast, at Procter and Gamble, which operates in a more stable product environment, new product proposals go through 40 to 50 revisions until they reach the CEO for a decision (Herbold, 2002, p. 74).

In intelligence, particularly in counterterrorism intelligence, a loosely knit, decentralized structure of multiple agencies is likely to be optimal. The information environment is unstable. Most intelligence leads and clues lead nowhere, so that the few accurate ones are scarce and therefore valuable; and generally when good ideas are scarce, a decentralized structure is preferable as more ideas will get through the filters (Sah and

Stiglitz, 1986).⁶ Moreover, in intelligence work the cost of false negatives (not pursuing a lead and so failing to avert a terrorist act) is likely to be higher than the cost of false positives (pursuing a lead that turns out to be a false alarm). An example in which a centralized intelligence approach failed was the 1973 surprise attack by Syria and Egypt that began the Yom Kippur war. In deciding whether there would be an attack, the Israeli Cabinet considered only one opinion, that of the chief of military intelligence. The Agranat Commission, which studied the causes of the intelligence failure, recommended that the intelligence system be reorganized to “ensure pluralism in the various types of intelligence evaluation” (“Israel: What Went Wrong on October 6?” 1974). Similarly, in the months preceding the Iraqi war a number of low-level officers in the CIA’s Directorate of Operations expressed doubts about the veracity of Curveball’s information. But their superiors disagreed and presented a filtered, unified point of view that failed to reveal the diversity of opinion at the lower levels (WMD Commission, 2005, p. 94).

However, a problem with decentralization arises from the *dynamic* aspect of the tradeoff between false positives and false negatives. A decentralized structure that generates many mistaken warnings of an imminent attack can lull decision makers into ignoring future warnings that may be accurate—the “boy who cried wolf” phenomenon. To minimize this cost of false alarms, the threshold for warning must be raised, which requires a more centralized structure in order to filter out some of these alarms. The problem is particularly acute in an environment in which agents are “trigger happy” because of past intelligence failures. The natural reaction to such failures is to provide too little filtering of warnings and as a result to sound too many alarms. For example, in the post-9/11 environment, “The channels conveying terrorism intelligence are clogged with trivia. One reason for this unnecessary detail is that passing information ‘up the chain’ provides bureaucratic cover against later accusations that the data were not taken seriously. As one official complained, this behavior is caused by bureaucracies that are ‘preparing for the next 9/11 Commission instead of preparing for the next 9/11’” (WMD Commission, 2005, p. 422).

Lock-in Effects

To prescribe contractually what agents must do in all potential states of the world is prohibitively expensive. Instead, firms and other organizations rely on a set of common norms, understandings, customs, and perspectives that substitute for explicit contracting and thus enable cooperation to be attained on dimensions of performance that cannot be prescribed by contract. This set of noncontractual binding elements is the organization’s “culture” (Kreps, 1990).⁷ Importantly, the culture also includes a set of codes and other shared specific human capital that facilitates communication and coordination among agents (Crémer, 1995). (By the word “code” we mean to indicate formats and protocols for digitized communications as well as technical terms, organizational jargon and other means for facilitating verbal communications.) Unfortunately, an organizational culture

⁶ The analysis of this point is complex but the point seems to hold in general. See Sah and Stiglitz (1986, p. 725); see also Stiglitz (2001, p. 511).

⁷ See also Crémer (1986) for an earlier view of culture along these lines.

that is optimal in the current environment may become suboptimal when the environment changes, and yet agents will be rationally reluctant to change the design (Arrow, 1974). For once information channels and other organizing elements are created, a sunk investment has been made that will constrain the organization's reaction to a new environment, especially since an organization's culture is diffused throughout the organization rather than concentrated in one place (an employment manual, for example) where it could be changed at a stroke. The organization's culture may even prevent the organization from recognizing a change in the environment.⁸

Lock-in effects of this sort explain the difficulty that intelligence agencies experienced in adapting to the end of the Cold War. As noted by the WMD Commission (2005, p. 4), the organizational structure was adapted to deal with a focused threat, that of the Soviet Union. Today's threat environment includes dozens of state and nonstate entities that could strike the United States—and in some cases with weapons that are difficult to detect by means of the intelligence apparatus that had been designed to meet the earlier challenge. The consequent inability to appreciate fully the nature of the threat posed by al Qaeda is the "failure of imagination" emphasized by the 9/11 Commission 2004, pp. 339–348). The WMD Commission (2005, ch. 10) gives examples of how the organizational culture of the FBI has thwarted the director's efforts to recast the Bureau as an intelligence service rather than primarily just a criminal investigation agency.

Lock-in effects provide a further reason for encouraging cultural differences in the intelligence community and thus for decentralization. These differences are illustrated by the very different perspectives of the Defense Intelligence Agency, reflecting the outlook of the military; the State Department's Bureau of Intelligence and Research, reflecting the department's preference for diplomatic over military solutions; and the CIA, which has neither commitment. With competing intelligence agencies, there is a greater likelihood that one or a few of them will have a culture that is well adapted to an altered environment.

Information Sharing

The lack of prompt and full sharing of intelligence information within intelligence agencies, between different agencies, and between federal, state, and local government levels has been blamed for the intelligence failures concerning both 9/11 and Iraq. The 9/11 Commission (2004, chapter 8) provides an account of the miscommunications and leads not followed: for example, the CIA did not pass on the names of suspected terrorists to the Federal Aviation Administration before 9/11, and a memo from the FBI's Phoenix field office requesting investigation of flying schools was not followed up. The WMD

⁸ In their analysis of the photolithographic equipment industry, Henderson and Clark (1990) find that firms successful in one generation often had an organizational architecture that made it difficult for them to recognize changes in demand and technology that would dominate the market in the next generation. Such constraints, it should be noted, can also operate at an individual, rather than organizational, level. Mullainathan (2000) argues that the mind assigns a particular observation to a previously formed category; which limits the possibility of updating on the basis of new information. Only major shocks will induce a change in the categorization scheme.

Commission (2005, p. 430) notes that the reports questioning Curveball's credibility were not disseminated widely enough within the intelligence community and to policymakers. Both information-processing and incentive perspectives can help to explain the impediments to sharing information. Again, given the tradeoffs involved in considering any measures for improving sharing, some of the impediments to full and prompt sharing of intelligence data may be efficient.

Communication Channels

How specialized to make the code that, as we noted earlier, enables the organization's members to communicate with one another involves the following tradeoff: a specialized code improves communication within the organization but tends to isolate it from other organizations, and a less specialized code facilitates coordination among organizations but impedes communication within the organization (Crémer, Garicano and Prat, 2005). Moreover, if different organizations having overlapping functions (such as the different intelligence agencies) employ different codes, some of the organizations may prove better adapted to a change in the environment. (This is similar to our earlier point about the value of diversity in combating lock-in effects.) Thus, the short-term advantage of code uniformity in facilitating communication across agencies has to be traded off against the long-term advantage of code diversity in facilitating the system's adaptation to change.

Organizations exist because of the benefits of hierarchy in directing activity, but hierarchy impedes the sharing of information between different levels of the organization. Not only must information be filtered out as it travels up the hierarchy, in order to avoid overloading the higher echelons, but information tends to become garbled in successive transmissions (Williamson, 1967). Thus "criticism of Curveball grew less pointed when expressed in writing and as the issue rose through the CIA's chain of command" (WMD Commission, 2005, p. 105). Similarly, the presidential daily brief (PDB)—a summary of intelligence findings prepared for the President—necessarily suppresses most of the nuances of the information being presented: "[P]olicymakers are sometimes surprised to find that longer, in-depth intelligence reporting provides a different view from that covered by the PDB" (WMD Commission, 2005, p. 420).

In intelligence, the need for secrecy will typically mean that information cannot be shared as freely as, say, sales or personnel records are shared in private firms. Instead, intelligence information may need to travel some distance up the hierarchy of the agency in which it was obtained before it can be shared with another agency (or another unit of the same agency). Hence, even a national-security intelligence agency that takes advantage of information technology can be expected to have a more hierarchical management structure than its private-sector counterpart.

Both the WMD and 9/11 Commissions noted that information technology can improve the sharing of information. To benefit fully from information technology, organizations usually need to change their structure: to become more decentralized, delegating more more decisions to frontline employees because they have more information at their fingertips; to use higher-skilled labor; and to dispense with some of their hierarchical

layers by assigning broader spans of control to each manager.⁹ Information also alters the tradeoff between codes and hierarchies. Computers allow specialized codes used by individuals or groups to be more easily integrated into common codes, which is why the role of managers in facilitating information transfer declines and organizations tend to flatten out.¹⁰ One reason that government agencies, including intelligence agencies, have been slow (as noted by the WMD Commission) to take advantage of the digital revolution is that it is easier for them to resist making the complementary organizational changes necessary to benefit fully from information technology because they do not face the same competitive pressures for efficiency that private businesses do.

Incentives for Sharing Information

Members of an organization often have disincentives to share information. Public employees typically compete against each other for pay and promotion (that is, there is a fixed number of slots at the different career levels), and while such tournaments can have good incentive effects (Lazear and Rosen, 1981), they can also have bad ones. Agents may try to sabotage each other (Lazear, 1989) by concealing information or providing false information. Or they may squander resources on “influence activities” that seek to manipulate the perception of their performance by superiors or otherwise gain the favor of those superiors (Milgrom and Roberts, 1988, 1990).¹¹ An example is the presidential daily brief, which has become the primary platform by which intelligence agencies seek to advertise their products in competition with each other: “The daily reports seemed to be ‘selling’ intelligence—in order to keep its customers, or at least the First Customer, interested” (WMD Commission, 2005, p. 14)

A turf war is an extreme version of influence activities. In a turf war, agencies shift resources from productive activities to influence activities. This may enable the less productive agency to obtain more resources in the future (Skaperdas, 1992). Turf struggles between the FBI and the CIA were at the heart of the failure to track the 9/11 terrorists as they entered the United States (9/11 Commission, 2004, p. 263). These struggles have continued after 9/11; officials at the CIA’s Counterterrorism Center claim that “they have difficulty tracking and obtaining information about terrorist cases after they hand them off to the FBI” (WMD Commission, 2005, p. 469). Other turf wars are

⁹ For a discussion of this effect see Brynjolfsson and Hitt (2000). See also Bresnahan, Brynjolfsson and Hitt (2002) and Caroli and Van Reenen (2001) for evidence of the relation between IT and decentralization, and Rajan and Wulf (2003) for evidence on the impact on hierarchical spans and layers. Communications technology, however, as opposed to information technology in the sense of digitization and manipulation of data, encourages centralization by enabling more decisions to be made by higher-level decision-makers. See Garicano (2000).

¹⁰ Examples are the design of the B-2 bomber—engineers were allowed to communicate across firm boundaries without relying on senior management (Argyres, 1999)—and the unification of human resource management and financial database management inside Microsoft (Herbold, 2002), which enabled a substantial increase in horizontal communication. Crémer, Garicano and Prat (2005) review the evidence in light of the theory.

¹¹ The tournament method of promotion will also, however, tend to make agents disperse rather than herd, for only by dispersing can the individual distinguish himself (see Zwiebel, 1995).

the CIA versus the intelligence agencies controlled by the Defense Department(WMD Commission, 2005, p. 332) and the CIA's Counterterrorism Center versus the newly created National Counterterrorism Center outside the CIA. Besides wasting resources, turf wars in the intelligence community retard the sharing of information because sharing benefits the rival agency.

A partial corrective might be for the Department of Defense to spin off its technical agencies, such as the National Security Agency, which intercepts electronic communications. In the current structure, the Department has a disincentive to share information generated by these agencies, since sharing reduces the amount of purely military intelligence and thus encroaches on DoD turf. A free-standing technical intelligence agency would have no incentive to favor the military over other intelligence customers.

Yet another reason why members of an organization might not share intelligence is that they do not want to lose the rents derived from their control of the resulting knowledge. An FBI agent who has information that may lead to an arrest may realize that passing this information to another agent, or another agency, is the right thing to do from a social perspective. But if he passes along the information he is less likely to make the arrest and earn the consequent career rewards.¹² This weakness of the incentives for sharing was emphasized in the 9/11 Commission's report and continues to plague the intelligence system. The WMD Commission's report found that "individual departments and agencies continue to act as though they own the information they collect" (WMD Commission, 2005, p. 14).

Designing incentives to reward information sharing isn't simple, however. If the rewards are based on the quantity of information shared, the quality of the information may suffer. What is needed is a method of determining how valuable the information is to the recipients. One way to do this is, perhaps in part by means of the "encrypted tag" system suggested earlier, to track how and where the information is cited in other analytical reports. Analogies are the use of number of "hits" on a blog site to determine advertising rates for the site and the use of citations to an academic's published scholarship as a basis for tenure decisions. A problem is that agents might use their networks contacts and influence to obtain additional citations.¹³

An organization can also nudge its members toward sharing more information by lowering the costs of doing so. For example, agents from different divisions (or agencies) with related responsibilities could be officed in close proximity, as occurs now in the case of the National Counterterrorism Center, where representatives of the different intelligence agencies sit side by side. An employee's sense of identification with an employer can help to align individual and organizational incentives and thus reduce principal-agent conflict (Akerlof and Kranton, 2005). Military organizations, and

¹² See Garicano and Santos (2004) for an analysis of this problem in a profit-making environment.

¹³ This is an instance of the "you get what you pay for" problem that we discuss at greater length in the next section.

paramilitary organizations such as intelligence agencies, endeavor to create an esprit de corps that substitutes for financial incentives to good performance. In the case of intelligence, agents who care deeply about their mission may put a higher priority on sharing intelligence data.

Increasing sharing through centralization

The implication of our analysis is that centralization will improve information sharing. A single agency will tend to have a common code (including compatible data networks), uniform access criteria, and other common practices that facilitate the exchange of information; fewer turf wars because of centralized control over the potential warriors; and weaker incentives to hoard information because the benefits that members of a single agency generate by sharing will tend to benefit their own careers. Unfortunately, the benefits of centralization come at the considerable price that we discussed in the first section: herding and related informational problems that stem from centralization.

Insufficient Centralization and Mission Incompatibility at the FBI

Although the general thrust of our analysis is to favor decentralization of intelligence, the FBI, which is the nation's principal domestic intelligence agency, requires that this conclusion be qualified.

In the eight years following the 1993 truck bombing of the World Trade Center bombing, the FBI tried without success to develop an effective domestic intelligence capability. On two separate occasions, it adopted strategic plans that it failed to implement. The 9/11 Commission found that the FBI had failed both to collect adequate intelligence data and to combine the raw, disaggregated data into accurate knowledge of terrorist threats. The 9/11 Commission (2004, pp. 76-78) identified several causes of such failures: FBI headquarters encountered obstacles and resistance from the local field offices; despite pledges by Congress and the Department of Justice; additional resources were not allocated to the FBI's intelligence activities; intelligence analysts had to rely on personal relationships to obtain intelligence data from the files of local field offices, because the data in the different offices were not fed into a single database or otherwise aggregated and shared, and hence patterns of terrorist activity were not detected; and the required human resources were never fully developed.

Most critics of the FBI's poor performance blame flawed management and execution. A deeper analysis suggests that the problem is not individual or collective incompetence but an organizational design unsuitable for domestic intelligence. All three of the main elements of the overall organizational design of the FBI—decentralized structure, objective output measurement, and (related to the first two points) high-powered career incentives—are unsuited to the intelligence mission.¹⁴ We consider each of these elements in turn.

¹⁴ The categorization of organizational structure into these three complementary elements (decision rights, monitoring system and reward structure) follows Jensen and Meckling's (1995).

Traditionally, the FBI has concentrated on investigations of ordinary federal crimes unrelated to national security, such as bank robbery, bank fraud, mail fraud, public corruption, and drug offenses. This focus became even stronger after abuses of civil liberties by the FBI surfaced in the 1970s—the reactions to those abuses tended to steer it away from domestic intelligence work—and after the Cold War ended in 1989, which made such work seem less valuable. The organization of the FBI was therefore optimized to the law enforcement function. This meant, to begin with, that FBI headquarters delegated decision “rights” for the initiation and conduct of cases down to the field offices. Each office “owned” the cases it initiated, and controlled all work on the case. This continues to be the practice. The initiating office is called the “office of origin,” and the “office of origin mentality” is central to the FBI’s organizational culture. The office of origin will control even a case involving criminal activity that overlaps the jurisdiction of other local offices. This decentralized system is combined with a performance measurement and reward system in which career advancement is closely linked to number of arrests, indictments, and convictions (9/11 Commission, 2004, pp. 108–109).

A decentralized system is likely to work well in crime fighting as long as most crime is local or regional rather than national or international, since such a system is best at utilizing “local knowledge.” Most federal crime *is* local or regional. Moreover, delegation functions as a commitment by the center not to intervene (Aghion and Tirole, 1997) or (maybe more realistically) as a relational contract between the local offices and the center whereby the center effectively chooses not to intervene (Baker, Gibbons and Murphy, 1999). This commitment motivates FBI agents to invest in local knowledge, confident that agents from headquarters are unlikely to swoop down and take credit for the arrests and prosecutions. Decentralization also enables “yardstick competition”—that is, performance can be assessed by comparing the output of different offices.¹⁵ At the same time, however, a decentralized system involves a loss of control: when agents can appeal to local knowledge as the basis of their decisions, the center, which by definition lacks that knowledge, cannot monitor their decisions effectively. When the task is criminal investigation, this problem is not acute, because the outputs of FBI agents engaged in criminal investigation—number of arrests, prosecutions, convictions, length of sentences, and amount of property recovered—are quantitative, relatively hard to manipulate (at least legally!), and therefore easy to measure and monitor. And, given the decentralized structure and objective performance criteria, FBI special agents can be motivated by “high-powered” incentives, that is, by basing promotion and other career benefits on individual performance at the field-office level.

This combination does not work well for intelligence. International terrorism is obviously not a local crime problem; combating it effectively requires the sharing of information across geographic boundaries, which is impeded by decentralization, especially when career incentives discourage sharing information with other offices or agents, who are

¹⁵ More precisely, a decentralized structure does not affect the incentives of the lowest-level employees, nor those of the top managers, but improves the incentives of the middle managers by subjecting them to yardstick competition. Maskin, Qian, and Xu (2000) analyze this phenomenon with an interesting application to the difference between the Soviet and Chinese communist systems.

viewed as competitors. Decentralized organizations tend to encourage individual initiative and effort at a possible sacrifice of coordination. Centralized organizations sacrifice some initiative to ensure coordination. When individual performance incentives are strong, any attempt to compel joint, coordinated decisions will be resisted by members of the organization who have little or nothing to gain from improvements in organizational performance that will decrease their own measured output (Dessein, Garicano and Gertner, 2005).¹⁶ Decentralization, along with the reluctance of criminal investigators to disseminate information that might assist defense lawyers, is a factor in the FBI's well-documented difficulties with obtaining adequate information technology. Both before and after 9/11, the FBI's local offices responded to requests for counterterrorism effort by asserting the unavailability of human resources. The pre-9/11 FBI did not fail in the intelligence mission because of a lack of initiative by field offices—on the contrary, agents in Phoenix and Minneapolis were able to follow through on their hunches and obtain valuable information (9/11 Commission, 2004, pp. 272–276)—but because of a failure to coordinate the information generated in the different offices. Local FBI offices are motivated to exert effort on their own cases, but not to collaborate with one another.

Moreover, arrests and convictions are not a useful measure of the work of an intelligence agency. Intelligence tries to detect plots and threats *before* they reach the level at which they are prosecutable crimes. It aims at long-term penetration of suspect groups. It worries little about whether the data it collects would be admissible as evidence in a criminal trial. Instead, it assumes that once subversive activity is discovered, it can be disrupted by disclosure, disinformation, deportation, and so on. Intelligence work actually disfavors criminal prosecutions, because they reveal to the enemy what the government knows and because trials can force the disclosure of secret information. In fact, objective output measures of any kind are unlikely to be highly correlated with the desired output, which is successful intelligence work as just defined. Uncertainty about the causal linkage between intelligence activity and the prevention of terrorist acts is so great that basing career rewards on success in preventing terrorist acts may be tantamount to linking it to the weather. Acts of terrorism are few and far between, and indeed the earlier in the planning stage a terrorist project is interrupted the less likely it is that, had the planning been allowed to continue, the project would actually have been carried through rather than abandoned. (Much terrorist planning turns out to be just talk.) In addition, effective intelligence depends on the interlocking performance of many agents and organizations, rather than on an individual or a small team, as in the case of most criminal investigations, and the individual's contribution is therefore very difficult to determine. And the social benefits derived from intelligence activities lie not just in information obtained, but also in raising the costs of planning and organizing terrorist activity. Such benefits are exceedingly hard to assess, let alone to assign to particular officers or even agencies.

¹⁶ The tradeoff between initiative and coordination is a key one in the design of all organizations, as was first observed by Holmstrom and Roberts (see e.g. Roberts, 2004).

Finally, given the inappropriateness of objective output measures, high-powered incentives, linking advancement to success, are likely to have perverse effects. Individuals will of course change their behavior in response to strong incentives, but with results dramatically different from those sought by the principal, if the performance rewarded is insufficiently close to the performance desired.¹⁷ Such dysfunctional responses are observed in intelligence. Intelligence analysts are frequently rewarded on the basis of the sheer number of intelligence pieces produced, which encourages them to focus on short-term issues that can be analyzed quickly (WMD Commission, p. 175). Operations officers are often rewarded on the basis of how many spies they recruit, which encourages them to focus on “foot soldier” type individuals who are easiest to recruit and as a result unlikely to have good access to valuable information (WMD Commission, p. 159).

Discouraging such perverse behaviors requires weakening incentives when the measures of performance that are available are too imprecise. A rational organization in such circumstances will focus on monitoring the quality of the inputs (for example, Prendergast, 2002) rather than trying to link incentives to observed performance. An intelligence organization should focus on careful hiring, but, once hired, intelligence officers who perform “adequately” in some necessarily rather subjective sense should probably advance according to seniority and those that do not perform adequately should be fired. Departures from seniority should be limited to top management and to extreme cases of incompetent or superlative performance,¹⁸ since extremes can often be observed even when means cannot be.

The problem of mission incompatibility within the same organization has been studied in the organizational economics (see Roberts 2004) and strategy literatures, which find that most successful organizations are designed to fulfill one common mission. In the case of Southwest Airlines, for example, every activity is designed to further the aim of providing low-cost but convenient transportation, particularly by ensuring quick turnarounds at the gate (see e.g. Porter 2000). Organizations that try to achieve incompatible aims tend to fail, as in the case of the low-cost siblings of high-end airlines (for example, Continental Lite, as described by Porter, 2000).

The application of this analysis to the FBI is straightforward. If crime fighting requires a geographically decentralized organization with limited sharing of information and strong

¹⁷ See Baker (1992) and Holmstrom and Milgrom (1991, 1994) for a different theoretical analysis of this “you get what you pay for” and multitasking problems, and Gibbons (1998) and Prendergast (1999) for examples in domains unrelated to intelligence. For example, Anderson, Burkhayser and Raymond (1993) and Cragg (1997) find that the Job Training Partnership Act, which keyed rewards to the number of persons reemployed, induced recruitment of persons likely to find jobs without retraining—it was easier and cheaper to find jobs for them. Another, familiar example is the substitution of quantity for quality as a consequence of the practice of paying lawyers by the number of hours they work on a case.

¹⁸ Effectively, this would mean substituting for the explicit objective measures that exist now implicit contracts based on subjective measures sustained by the parties’ desire to maintain a good reputation in order to facilitate future advantageous transactions (Bull 1987). On the interaction between subjective and objective performance measures, see Baker, Gibbons and Murphy (1994).

individual incentives based on outputs, but national-security intelligence requires a geographically centralized organization with extensive sharing of information and careful screening of inputs but low-powered incentives, the organization's geographical, incentive, and information-sharing structure will either be an unhappy compromise or assure poor performance of one of the two missions. In addition, if an organization has two different career tracks, only one of which bases advancement on objective criteria, the abler employees will gravitate to that track, knowing that they will do well with such criteria but not knowing how well they will do if the criteria are subjective, since use of subjective criteria enables personal contacts and other ability-independent considerations to influence advancement. This is not a problem if the tracks are completely separate (e.g., criminal investigation and orthopedic surgery), but criminal investigation and intelligence are similar enough to enable choice, especially when the Bureau's policy is to train all its special agents in both criminal investigation and intelligence.

Thus our analysis suggests the desirability of creating a domestic intelligence agency that, like the United Kingdom's MI5 (the official name is the "Security Service"), would have no law-enforcement responsibilities.¹⁹ Such a separation would recognize the profoundly different organizational cultures (in the sense of Kreps, 1990) of national-security intelligence and criminal investigation. Empirical support for this conclusion is found in the fact that not just the United Kingdom, but every major nation for which we have information, has a domestic intelligence agency that is separate from a criminal-investigation agency (though sometimes combined with foreign intelligence); these nations include, besides Britain, France, Germany, Italy, Spain, Israel, Japan, India, Australia, New Zealand, and Canada.

Conclusion

Intelligence failures appear to be common, even when the costs of such a failure are very great. To some extent the difficulty of achieving accuracy in intelligence analysis is inherent in the limited information-processing capacity of individuals and organizations, especially in organizations which necessarily place a high value on secrecy. But even within intelligence organizations, incentives and structures can either exacerbate or ameliorate issues like herding, the lock-in problems, catering to the preconceptions of one's superiors, and sharing information.

The existence of systemic obstacles to good intelligence performance should give policymakers pause in proposing structural solutions. The intelligence agencies have built up a considerable body of expertise and a functioning set of internal organizational codes. Substantial restructuring would be disruptive and impose transitional costs likely to exceed the benefits, especially if the restructuring tends to centralize the intelligence system. In a rapidly evolving international environment, with a large number of potential state and nonstate threats to consider, the benefits of decentralization are great. The challenge is to facilitate a better flow of information (which decentralization can impede) without encouraging group think or yes-man behavior. Therefore, we recommend mainly

¹⁹ For a detailed discussion of this proposal, see Posner (2005b).

modest solutions to perceived intelligence failures: using encrypted tags to identify sources of information; maintaining multiple intelligence agencies for the benefits of decentralization, but with some physical interspersing of analysts who consider common issues; greater rotation and shifting of agency managers to reduce the risk of managerial insistence on past errors; and spinning off the technical information-gathering agencies. Our one “radical” suggestion is to create a domestic intelligence agency that would be separate from the FBI; this proposal can be made less radical by leaving the FBI with its intelligence capabilities intact; this would have the incidental benefit of providing a competing test of the criminal-investigation and pure-intelligence models of domestic intelligence (Posner, 2005b).

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