

**COMPENSATION, INCENTIVES AND ORGANIZATIONAL CHANGE:
IDEAS AND EVIDENCE FROM THEORY AND PRACTICE**

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Autumn 2000

Chapter 13 in *Breaking the Code of Change*, Michael Beer and Nitin Nohria, editors
Harvard Business School Press, Boston, 2000, pp. 269-305.

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Abstract

Academics and practitioners from a wide range of backgrounds agree that bringing about sustainable, productive changes in organizations is difficult. They disagree, however, on why this is the case. Consequently, they disagree on the most effective approaches to analyzing and solving organizational problems, and on the most effective approaches to implementing solutions. At the heart of the disagreement are differences over the factors that motivate individuals to change their behavior. Behavioral changes on the part of individuals are required for organizational change, and compensation systems affect behavior. Thus, it is critical to consider the role that compensation systems play in the process of organizational change.

The paper explains why establishing a strong, positive relation between rewards and performance is critical to bringing about value-creating organizational change. Throughout it draws on ideas and evidence, both old and new, from theory and practice. The ways in which well-designed compensation systems create value in organizations are grouped into four broad categories. Specifically, compensation systems:

1. Improve the motivation and productivity of employees,
2. Promote productive turnover in personnel,
3. Mobilize valuable specific knowledge by allowing effective decentralization, and
4. Help overcome organizational inertia and opposition to change.

The paper also analyzes the issue of timing in the implementation of a new compensation system. Conventional wisdom in the field of organizational behavior advocates changing compensation systems only after new “strategy and structure” are designed and implemented. In contrast, I provide arguments and evidence in support of changing compensation systems “early.” By early, I mean that compensation systems should be redesigned *after* managers identify and adopt an over-arching objective for the firm, but *before* they have completely specified how that objective translates into a new strategy and/or structure.

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1. Introduction

Academics and practitioners from a wide range of backgrounds agree that bringing about sustainable, productive change in organizations is difficult. They disagree, however, on why this is the case. Consequently, they disagree on the most effective approaches to analyzing and solving organizational problems, and on the most effective approaches to implementing solutions. At the heart of the disagreement are differences over the factors that motivate individuals to change their behavior. Behavioral changes on the part of individuals are required for organizational change, and compensation systems affect behavior. Thus, it is critical to consider the role that compensation systems play in the process of organizational change.

To discuss the ways in which compensation systems facilitate effective organizational change, I must first define what I mean by productive or effective change. (I will use the two terms interchangeably.) *Productive change* is not a normative term subject to interpretation. In other words, it is not based on whether or not various individuals or groups think a particular change effort is good or bad, fair or unfair, painless or painful. Productive change is change that creates value for the organization and its owners, and in doing so creates value for society.

Because resources, including human resources, are scarce, social welfare depends on the ability of organizations and individuals to utilize resources efficiently or, equivalently, in ways that create value. A firm creates value when the value of the goods and services it produces is greater than the value of the resources it consumes. Assuming that prices accurately reflect the costs and benefits to society of the consumption of a particular resource, the value created by a firm is value created for

society. This is the case in the absence of externalities and monopolies, and in the presence of well-functioning markets.¹

This chapter will show why establishing a strong, positive relation between rewards and performance is critical to bringing about value-creating organizational change. Thus, if a firm's incumbent compensation systems do not tie rewards to strong performance *as it is defined in the new regime*, they must be redesigned. I will argue that this redesign can and should be implemented early in the change process. By early I mean *after* managers identify and adopt an overarching objective for the firm, but *before* they have completely specified how that objective translates into a new strategy and/or structure.

The ways in which effectively designed and implemented compensation systems help organizations create value can be grouped into four broad categories. In the rest of this chapter, I examine each of the four ways in which changes in compensation systems promote productive organizational change in turn. Specifically, effective compensation systems

1. improve the motivation and productivity of employees (section 2),
2. promote productive turnover in personnel (section 3),
3. mobilize specific knowledge by allowing effective decentralization (section 4), and
4. help overcome organizational inertia and opposition to change (section 5).

Clearly, there is interdependence among the four items. For example, overcoming organizational rigidities helps bring about productive changes in individual and group behavior. Other interdependencies will become obvious in the discussion that follows. Nonetheless, each of the four ways in which compensation systems work to bring about change can be productively discussed as a separate mechanism.

Before I continue, it is important to point out that by *compensation system* I do not mean simply monetary payment. This definition is far too narrow to encompass all the things that human beings value or detest about organizational life, and so cannot capture all that affects their

¹ Markets do not have to be complete or frictionless to be well-functioning. This is too high a standard to impose, even in highly developed market economies. There are strong incentives to develop ways to resolve market incompleteness and to reduce market frictions. Nonetheless, when the costs of resolving problems are greater than the benefits, the problems will persist and this is optimal. To paraphrase Jensen and Meckling (1976), who make the same point in a different context, observing market incompleteness or frictions and concluding that [market outcomes] are "non-optimal, wasteful or inefficient is equivalent in every sense to a world in which iron ore is a scarce commodity to one in which it is freely available at zero resource cost, and concluding that the first world is 'non-optimal'." [p. 328, Jensen, Michael C. and William H. Meckling, 1976, Agency Costs and the Theory of the Firm, *Journal of Financial Economics* 3, 305-360.]

motivation and incentives. Rather, I define rewards and punishments broadly to encompass both the monetary and the nonmonetary. Thus, rewards and punishments include the satisfaction or dissatisfaction generated by participating in one's job, including the benefits of changes that make a job easier or safer, public recognition, the value of interactions and relationships with peers, raises, promotions, bonuses, profit-sharing plans, and equity ownership programs. All these items are valued by individuals and so provide motivation and incentives.

For managers considering the redesign of their firm's compensation systems, however, monetary rewards are a strong place to start—not because individuals value money over other types of rewards, but because money represents a claim over the goods and services that employees value. This means that employees can take the rewards from their work and spend them in a way that exactly meets their preferences. Thus, in general monetary rewards provide more flexibility and likely more utility for employees per dollar expended than less flexible rewards. Put differently, monetary rewards set in motion a decentralized process that allows each employee, at relatively low cost, to tailor rewards to his or her preferences. The only alternative that provides such flexibility is for managers to learn, in detail, the tastes and preferences of individual employees and reward them accordingly, an approach generally too costly to be feasible.

I also want to make clear that my position is *not* that a redesign of compensation systems is the only necessary change a firm must make to turn its performance around. Neither is it my position that if the appropriate changes in compensation systems are implemented, all else will follow. Indeed, some of the organizations I have studied attempted to follow this approach. It ended in disaster.² To foster effective and lasting change, however, it is ultimately necessary to bring about changes in human behavior, ideally at all levels of the organization. Individuals, alone or in groups, are the ones who will identify and implement solutions to the problems facing an organization. And it is individuals who will prosper or decline as a result of the organization's success or failure. This makes individuals—their motivation, incentives, and the effectiveness of their learning and communication—the most important element in the change equation. Compensation systems, through their influence on individual behavior, play a pivotal role in the change process.

Finally, it is worth pointing out that the relation (or lack thereof) between pay and performance affects behavior in all organizations. All organizations have rewards and punishments. All individuals, groups, and business units have performance. It is natural to observe whether and how the two are related, and to draw inferences from these observations. It is clear, then, that managers

² See, for example, Wruck, Karen Hopper, 1991, What Really Went Wrong at Revco?, *Journal of Applied Corporate Finance*, Summer 1991, 79-92.

do not get to choose whether or not their organization will have a reward and punishment system that affects the motivation, incentives, learning, and communication of their employees. They do, however, have a choice about whether and how to manage it.

Throughout this paper I use ideas and evidence from practice. I present these examples to illustrate not what is typical but what is possible—the bad and especially the good. It is my hope that these examples will stimulate both ideas and action among scholars and practicing managers.

I draw my examples from a broad range of sources including press reports, research articles, books, and my own studies of organizations in the process of change. In particular, I draw on the experiences of two companies I have studied in depth: Cooper Cameron and Cytec Industries. In my analysis of Cooper Cameron, I draw heavily on a study I conducted with Steve Kaplan and Mark Mitchell.³ In my analysis of Cytec, I rely on a series of cases written with Sherry Roper.⁴ All three of these coauthors deserve special thanks for their contributions to this paper.

Both Cooper Cameron and Cytec are publicly traded on the New York Stock Exchange. In 1998 they had sales of \$1.9 billion and \$1.4 billion, respectively. Each firm became public following a spin-off from a larger, better-known parent company: Cytec in December 1993 from American Cyanamid (acquired by American Home Products in 1996) and Cooper Cameron in July 1995 from Cooper Industries (publicly traded on the NYSE).

What makes Cooper Cameron and Cytec particularly interesting for students of organizational change is that they both have long histories as businesses, but short histories as independent public companies. Cooper Cameron is in oil field service and petroleum equipment production. Its oldest business was founded in 1921. Cytec is a spin-off of American Cyanamid's specialty chemicals businesses. American Cyanamid was founded in 1907 as an agricultural chemicals company. By the 1920s, it had diversified into specialty chemicals.

³ The complete reference is Kaplan, Steven N., Mark L. Mitchell, and Karen H. Wruck, *A Clinical Exploration of Value Creation and Destruction in Acquisitions: Organization Design, Incentives and Internal Capital Markets*, 1997, *forthcoming*, *Productivity of Mergers and Acquisitions*, Steven Kaplan, ed., National Bureau of Economic Research, Conference Volume.

⁴ The complete references are Wruck, Karen H. and Sherry P. Roper, *Cytec Industries' Spin-Off Case Series*, *Cytec Industries' Spin-Off (A): Sink or Swim?*, Harvard Business School Case 9-897-053 (12/8/97), *Cytec Industries' Spin-Off (B): Managing the Challenges of Success*, Harvard Business School Case 9-897-054 (2/12/98), Teaching Note, *Cytec Industries' Spin-Off (A) & (B)*, Harvard Business School Case 5-897-195, and Wruck, Karen H. and Sherry P. Roper, *American Cyanamid Case Series*, *American Cyanamid (A): Board Response to a Hostile Takeover Offer*, Harvard Business School Case 9-897-048 (Rev. 12/3/97), *American Cyanamid (B): Management's Response to the (A) Case*, Harvard Business School Case 9-897-064 (Rev. 12/3/97), *American Cyanamid (C): Epilogue*, Harvard Business School Case 9-897-178 (Rev. 12/3/97), Teaching Note, *American Cyanamid (A, B & C)*, Harvard Business School Case 5-897-161, *American Cyanamid (A) & (B) Combined*, Harvard Business School Case 9-898-120 (12/3/97).

Following their spin-offs, managers at both Cooper Cameron and Cytec faced a major challenge. Their companies could not be successful public companies if they continued to operate according to the status quo. For one thing, each of them had a history of operating losses and therefore of being “subsidized” by the parent firm’s other operations. Major organizational change was necessary, and it had to occur quickly. There was no longer a parent organization to provide cover and support. The challenge was particularly tough because both firms operated in very competitive, highly cyclical industries.

Because each firm had a long history, there was baggage from the past to overcome along many dimensions, from culture to organization structure to relationships with customers. Because each company was independent, however, managers were unconstrained as to the approaches they could take to facilitate effective change. They did not have to concern themselves, as do managers of large divisions of larger public companies, with how their approaches would be received by headquarters. Neither did they have to consider whether or not their policies and practices were consistent with policies and practices set at some higher level of the organization. Thus, their change efforts provide a fascinating laboratory in which to observe what is possible at well-established companies in the absence of internally imposed constraints—and, of course, in the absence of internal support to the extent it would have existed.

As public companies, both spin-off firms produced dramatic turnarounds in operating performance. Between 1995 and 1998, the first four years following its spin-off, Cooper Cameron’s operating profit before depreciation (OPBD) increased more than fourfold from \$79 million to \$323 million. Four years after its spin-off, Cytec had moved from an OPDB of –\$95 million (1993) to \$216 million—(1996). By 1998 Cytec’s OPDB had increased to \$264 million.⁵ Both firms had only modest increases in their asset base during this time, so the performance improvement is attributable largely to improvements in operating efficiency. This performance is outstanding, even relative to

⁵ Stock price performance for Cytec is equally impressive, but Cooper Cameron’s stock price performance is mixed. Cooper Cameron experienced strong stock price performance through 1997. Then in 1998 the stock price was severely impacted by softening oil and gas markets and the economic crisis in Southeast Asia. One dollar invested in Cooper Cameron’s stock and held through 1997 returned \$3.44, while a dollar invested in the S&P 500 over the same period returned \$1.64. By the end of 1998, \$3.44 had fallen to \$1.38 (the analogous S&P investment returned \$2.11). Nonetheless, the company’s OPBD hit its highest level of \$323 million in 1998. In its 1998 letter to shareholders, management stated that “our challenge is to react quickly and manage our structure in the downside market as successfully as we did in the upside ones, and ensure that we will be prepared to take advantage of the recoveries in our business when they arrive.” In contrast, one dollar invested in Cytec and held through 1997 returned \$10.63, while a dollar invested in the S&P 500 over the same period returned \$2.28. Cytec’s stock was also negatively impacted in 1998 by the Asian economic crisis. The company’s past performance, however, was strong enough to offset its 1998 stock price decline. One dollar invested in Cytec at the time of its spin-off and held through the end of 1998 returned \$4.81. The same dollar investment in the S&P 500 returned only \$2.94.

that of other spin-off firms.⁶ Looking in detail at the ways in which managers brought about this improvement is, therefore, one way to learn about cutting-edge practice.

The discussion that follows is structured around the four ways in which compensation systems facilitate productive organizational change, as enumerated above.

2. Compensation Systems, Motivation, and Productivity

The most straightforward of the four ways in which compensation systems facilitate organizational change is through their effect on the motivation and productivity of individuals in the organization. Although the effect of compensation systems on motivation and behavior has historically been the subject of debate, researchers today generally agree that compensation systems encourage individuals to engage in more of the behaviors that are rewarded and fewer of behaviors that are punished. Edward Lawler of the University of Southern California and his colleagues have conducted perhaps the most comprehensive set of studies on the effects of compensation systems on behavior. Summarizing the findings of this work, Lawler states that “when pay is based on performance it can be a powerful motivator. ...My research over the years has consistently shown that rewards can have a major impact on employee motivation and the skills that individuals develop (or do not). As a result, [rewards] can have a critical impact on an organization’s effectiveness.”⁷

This is not to say that compensation systems are always designed in a way that elicits productive behaviors and wise decision making. There are numerous examples of reward systems that lead to counter-productive behaviors, ranging from the top levels of organizations to their shop floors. Perhaps the most famous examples are situations in which compensation systems have been alleged to have played roles in motivating individuals to commit fraud. In the world of finance, for example, rogue traders Nick Leeson of Barings Brothers (liquidating as of early 2000) and Joseph Jett of Kidder, Peabody (later acquired by General Electric) engaged in trading that was disastrous in the long run, but generated substantial cash bonuses for the traders in the short run.⁸ An older but classic example is the case of Heinz, where managers engaged in accounting fraud to achieve profit targets.⁹

⁶ Wruck and Wruck (1996) study a large sample of spin-off firms that went public between 1985 and 1995 and found that on average these firms experience modest improvements in operating profits relative to the industry, but nothing like the dramatic performance of the two firms examined here. [Wruck, Eric G. and Karen H. Wruck, 1996, Codependent No More: How Spin-offs Affect Parent and Spin-off Firm Performance, unpublished Manuscript, The Ohio State University.]

⁷ Lawler, Edward, E., 1996, *From the Ground Up: Six Principles for Building the New Logic Corporation*, Jossey-Bass Publishers, San Francisco., p. 195.

⁸ Kidder Peabody accused Joseph Jett of recording false profits of \$350 million on which he earned bonuses of \$8 million. Jett was not convicted of criminal fraud, but he was found guilty by a Securities and Exchange Commission

There are also many examples from manufacturing environments where individual piece-rate compensation (in environments where quality could not be easily monitored and/or where group cooperation was valuable) rewarded poor performance. Perhaps the best-documented study was conducted by Donald Roy, who found a reduction in productivity of 36 percent due to the perverse incentives provided by a poorly administered piece-rate system.¹⁰ Disastrous occurrences along these lines led a number of quality gurus to dismiss all pay-for-performance systems as counterproductive.¹¹ A conclusion that, although understandable, is incorrect.¹²

A more sensible interpretation of the evidence on compensation systems, offered by George Baker, Michael Jensen and Kevin Murphy, among others, is not that compensation systems don't work, but that they work too well.¹³ Put in simplistic terms, organizations get what they pay for in terms of individual behavior. Thus, I suggest that a firm's incumbent compensation system is a terrific place to look to understand an organization's current state of affairs. Until an organization redesigns its compensation system, which in many organizations becomes a sacred cow, undesirable behaviors and poor decision making will either persist or, after a brief period of change, resurface.

administrative law judge of "books and records violations and intent to commit fraud." He was ordered to return his \$8 million bonus and pay a \$200,000 fine. As of early 2000, Jet was working in the money management business, and had published a book *Black and White on Wall Street* in which he presents his view of events. (Fairley, Juliette, "Wrongly Accused trader tells his story of racism, sex, politics," *USA Today*, June, 21.)

Nick Leeson's trading practices resulted in a 650 million pound loss for Barings and forced the investment bank into liquidation. Leeson was convicted of criminal wrongdoing and served three and a half years of a six and a half year sentence before being released from prison in 1999. Upon his release from prison his assets, consisting largely of 100,000 pounds paid to him by a tabloid to tell his story, were frozen by Baring's liquidators. He receives a monthly living allowance. Both a book and a movie have been made based on his story. (Sands Sarah, 1999, "Comment: Leeson's Lesson: The Market is the Star," *The Daily Telegraph*, July 16, and Garfield, Andrew, 1999, "Leeson faces Fresh Threat to Assets," *The Independent*, July 19.)

⁹ Goodpaster, Kenneth E. and Richard J. Post, 1984, H.J. Heinz: The Administration of Policy (A), Harvard Business School Case 5-382-063 and Goodpaster, Kenneth E., Thomas R. Piper and Charles A. Nigel, 1984, Teaching Note for H.J. Heinz: The Administration of Policy (A), Harvard Business School Case 5-390-045.

¹⁰ Roy, Donald, 1952, Goldbricking in a Machine Shop, *American Journal of Sociology*, vol. 57, 427-442.

¹¹ The views of Crosby and Deming on compensation systems reflect this view. See for example, Crosby, Philip B., 1989, *Let's Talk Quality*, McGraw-Hill, New York, Crosby, Philip B., 1979, *Quality is Free*, McGraw-Hill, New York, Deming, W. Edwards, 1952, *Elementary Principles of the Statistical Control of Quality*. Revised 2nd ed., Tokyo: JUSE, Deming, W. Edwards, 1982, *Quality, Productivity and Competitive Position*, Massachusetts Institute of Technology Center for Advanced Engineering Study, Cambridge, MA.

¹² Juran and Mizuno are two quality gurus who take the position that it is important to link rewards to good performance as it is defined in the context of an effective quality management program. Juran, J.M., 1989, *Juran on Leadership for Quality*, Free Press, New York, p. 211, Mizuno, Shigeru, 1988, *Company-Wide Total Quality Control*, Asian Productivity Organization, published by Nordica International Limited, Hong Kong. I discuss compensation systems and the important role they play in quality management systems in Wruck, Karen Hopper and Michael C. Jensen, Science, Specific Knowledge and Total Quality Management, 1994, *Journal of Accounting and Economics* 18, 247-287, especially 270-281.

¹³ Baker, George P., Michael C. Jensen and Kevin J. Murphy, 1988, Compensation and Incentives: Practice vs. Theory, *Journal of Finance* 43, 3, 593-616, especially 597.

Below I examine compensation systems at Cooper Cameron and Cytec. Pre-spinoff, there was a substantial gap between desired and actual behavior at all levels of the organization. The gap can be explained by elements of the compensation system that were “hidden” from top management’s view. These hidden elements were not explicit parts of the reward system, but they affected behavior and morale nonetheless. Identifying compensation’s hidden elements is an important part of the organizational change process. It leads to a better understanding of current behavior and provides a basis for the design of a more effective compensation system.

2.1. Uncovering the Hidden Elements of Compensation

Part of what makes compensation systems difficult to manage is that the minutiae matter. It is the details of the design, implementation, and administration of a compensation system that determine its success or failure. We know that there are many ways to misunderstand, misdesign and mismanage compensation systems. What is less well understood, but equally important, is that managers often do not have a full understanding of how their compensation system is actually functioning. This is because in addition to the explicit and actively designed part of the system, there is an additional implicit or hidden part that takes on a life of its own. And hidden elements can overwhelm the system.

Both Cooper Cameron and Cytec managers reported that the compensation system of their former parent firm was ineffective. The ineffectiveness stemmed not from the explicit design of the compensation system but from the hidden part. In other words, the unintended consequences of the reward and punishment system were the dominant drivers of behavior. Following their spin-offs, top managers of both firms addressed this problem immediately by implementing new and very different compensation systems that provided incentives for productive organizational change. These incentives were not present in the parent firms.

The two critical elements of Cooper Industries’ compensation system were its reliance on the Hay system and its program to assess management performance, called the Management Development and Planning (MD&P) program.¹⁴ Under the Hay system each job is assigned a number of points based on measures of job size, including number of persons managed and size of the

¹⁴ Much of what follows in this section on Cooper Industries draws liberally on Kaplan, Steven N., Mark L. Mitchell, and Karen H. Wruck, A Clinical Exploration of Value Creation and Destruction in Acquisitions: Organization Design, Incentives and Internal Capital Markets, 1999, *Productivity of Mergers and Acquisitions*, Steven Kaplan, ed., National Bureau of Economic Research, Conference Volume. Our study draws information on Cooper Industries’ incumbent compensation system from in Collis, David and Toby Stuart, 1991, Cooper Industries’ Corporate Strategy (A), Harvard Business School Case 9-391-095 and Collis, David, 1991, Teaching Note for Cooper Industries’ Corporate Strategy, Harvard Business School Case 5-391-281.

budget under a manager's control. The objective of the system is to allow cross-job comparisons to assure that the firm is paying similar compensation to managers with similar jobs. Cooper Industries' top managers viewed the Hay system as valuable, because its uniform pay scales allowed managers to move equitably between divisions.

Unfortunately, one hidden consequence of the Hay system is that it creates incentives for managers to increase personnel and other resources under their control. Under the Hay system, increasing the size of your job increases your compensation. Taken in combination with Cooper Industries' long-established strategy of growth through acquisition, the Hay system resulted in a situation in which the company rewarded managers for empire building, in effect growing the firm beyond its optimal size. While empirically establishing the optimal size of an organization is not possible, the findings of my study with Kaplan and Mitchell are consistent with the hypothesis that Cooper Industries did indeed destroy value by becoming too large.

Cooper Industries' MD&P program also had an undesired hidden effect on motivation. Under MD&P each manager developed detailed goals for the forthcoming year. Based on an assessment of his or her attainment of these goals, a manager could earn a bonus of up to 20 percent to 40 percent of base salary (depending on rank). Cooper Industries' top managers viewed the MD&P program as extremely valuable, because it "uncovered existing or potential management gaps and identified people worthy of succession."¹⁵

But in interviews conducted with Cooper Cameron managers, a different picture of the compensation system emerged. In general, Cooper Cameron's managers experienced Cooper Industries' bonus allocations as independent of performance—theirs or the company's. MD&P was, therefore, a source of frustration rather than of motivation. Here is a sample of their comments:

There is one word that best describes Cooper's compensation system: mystery. It was an absolute mystery. I never knew why my salary was what it was. Bonuses were even more mysterious.

Cooper paid bonuses, but no one knew why they got what they got. It was kind of like getting a Christmas turkey.

We commiserated about it all the time. We would cry on each other's shoulders; we didn't understand it. We put trust in the division president to get us a decent bonus.

¹⁵ Quoted from Collis, David and Toby Stuart, 1991, Cooper Industries' Corporate Strategy (A), Harvard Business School Case 9-391-095, and Collis, David, 1991, Teaching Note for Cooper Industries' Corporate Strategy, Harvard Business School Case 5-391-281.

Cytec managers also described hidden aspects of their former parent firm's compensation plan that provided poor incentives.¹⁶ The most frequently mentioned feature was an inward-looking mentality focused on making one's superior "happy." Although taking actions to improve performance will sometimes be highly correlated with one's superior's happiness, this will not always be the case. And in cases of conflict between the two, it was clear to Cytec managers which one the typical American Cyanamid employee would choose. An important part of compensation at American Cyanamid was job security, and the company attracted individuals who valued this characteristic. Perhaps not surprisingly, Cytec managers described American Cyanamid's culture as bureaucratic and conservative. Many reported that a job-for-life mentality was common among employees at all levels of the organization, and that people were not held accountable for the outcome of their decisions. For example, one top manager commented:

When I was working as a division manager in the late 1980s, one of the things I had to do was to bring in a guy and tell him that we were selling his business and that he was going with it. He was really upset. The reason was that he just couldn't contemplate the possibility of leaving Cyanamid.

When someone is that worried about staying at a company, they start to care more about making their boss happy than about making the right decisions. They aren't willing to take risks, even when it's the right thing to do. That's how it was at Cyanamid.

Another Cytec top manager expressed the following view:

Cyanamid was very inwardly focused. By necessity a lot of energy was devoted to feeding information upward. I didn't spend as much time on it as others did, and sometimes that was a problem. ...People tried to figure out what management's vision was and then tried to please them.

It is difficult to imagine that substantive organizational change could have taken place in either organization without substantial revamping of both the explicit and the hidden compensation systems. Had change efforts taken place in the face of Cooper Industries' "mysterious" compensation system or of American Cyanamid's system based on pleasing one's superior, they would likely have come to naught or generated only temporary change.

2.2. A Brief Comment on Other Streams of Research

There are at least two well-known streams of research on compensation on which I have not relied because subsequent researchers have refuted their validity. The Hawthorne experiments,

¹⁶ Much of what follows on Cytec Industries is drawn or quoted from Wruck, Karen H. and Sherry P. Roper, Cytec Industries' Spin-Off (A): Sink or Swim?, Harvard Business School Case 9-897-053 (12/8/97).

conducted in the 1920s and 1930s, established the first stream of research. The Hawthorne researchers concluded that the social aspects of work are more important to productivity than economic rewards or physical aspects of the work environment.¹⁷ Their work was and is highly influential, launching the “human relations approach” to human resources management.

Subsequent researchers critiqued the experimental design and reanalyzed the data generated by the Hawthorne studies. Their work demonstrated that in many instances the experiments strengthened the relation between pay and performance. The original researchers did not intend for this to be the case. Nonetheless, this later finding raised the possibility that observed increases in productivity were attributable to economic rewards rather than to the social aspects of work. In addition, increased information feedback, rest pauses and shorter hours were also associated with increased rates of output.¹⁸

The second stream of work contends that extrinsic rewards—that is, rewards originating from external sources, including compensation—actually *reduce* productivity. Underlying this analysis is a “hydraulic” model of motivation. Under the hydraulic model, extrinsic motivators, in particular monetary rewards, drive out intrinsic motivation. Primary research supporting a hydraulic model of motivation was conducted by Edward L. Deci and popularized by others, most notably Alfie Kohn.¹⁹

¹⁷ Mayo, Elton, 1933, *The Human Problems of an Industrial Civilization*, Harvard University, Graduate School of Business Administration, Boston. Roethlisberger, Fritz and William Dickson, 1939, *Management and the Worker*, Harvard University Press, Cambridge, Mass.

¹⁸ For example, in the second relay assembly group experiment, the experimental group was paid based on the output of 5 persons rather than the output of 100 persons, which was the standard in the nonexperimental setting. This reduction in group size reduced what economists call the “free rider problem” and productivity increased quickly by 12.6 percent. “But the experiment caused so much discontent among the rest of the girls in the department who wanted the same payment conditions, that it was discontinued after only nine weeks. The output of the five girls promptly dropped by 16 percent.” Carey, Alex, 1967, *The Hawthorne Studies: A Radical Criticism*, *American Sociological Review* 32, 403-416, 406. Parsons (1974) reports that the Hawthorne experiments show that the “combination of information feedback and financial reward” generated the improved productivity observed in the experiments. He concluded that “it is an example of [the control of behavior by its consequences].”¹⁸ Based on his analysis, Carey (1967) reports that, “the results of [the Hawthorne experiments], far from supporting the various components of the ‘human relations approach,’ are surprisingly consistent with the rather old-world view about the value of monetary incentives, driving leadership and discipline.” He goes on to state that “questions are raised regarding how it was possible for studies so nearly devoid of scientific merit, and conclusions so little supported by evidence to gain so influential a place within scientific disciplines and to hold this place for so long.” [Carey, Alex, 1967, *The Hawthorne Studies: A Radical Criticism*, *American Sociological Review* 32, 403-416, p. 403, and Parsons, H.M., 1974, *What Happened at Hawthorne*, *Science* 183, 922-930, p.930.]

¹⁹ For a readable summary of Deci’s research findings see, Deci, Edward L., 1972, *Work—Who Does Not Like It and Why*, *Psychology Today*, Vol. 6, No. 3, August. Kohn has published a book on this aspect of compensation and a related article in the *Harvard Business Review*. The references are Kohn, Alfie 1993, *Punished by Rewards: The Trouble with Gold Stars, Incentive Plans, A’s, Praise and other Bribes*, Houghton Mifflin, Boston, Kohn, Alfie, 1993, *Why Incentive Plans Cannot Work*, *Harvard Business Review*, reprint number 93506, September/October. Also important for our purposes here is that Deci’s experiments are not conducted in a business setting, and are constructed in a way that only measures productivity during uncompensated periods. For example, one of Deci’s experiments had students work four puzzles for a fixed period of time. He paid one group of students \$1 for each puzzle they worked correctly; students in the other group were unpaid. Deci then measured how many puzzles students from each of the

Subsequent researchers, however, produced evidence inconsistent Deci's work and Kohn's interpretation of it. Edward Lawler, for example, reports that his research "contradicts the thinking of those motivational theorists who argue that pay systems can only be a source of dissatisfaction and that they cannot motivate employees to perform at a high level."²⁰ Teresa Amabile, whose work on creativity Kohn (incorrectly) cited as evidence supporting his view of motivation, finds that appropriately administered extrinsic rewards enhance rather than diminish creativity in the workplace.²¹ In summary, it is well established that both intrinsic and extrinsic motivation contribute positively to productivity.

Although both intrinsic and extrinsic motivation are important, as a practical matter it is sensible for managers to focus primarily on extrinsic rewards. Extrinsic rewards do pose a management challenge, but they are simpler to understand and work with than the intrinsic: it would be infeasible to gain insight into all the factors affecting the intrinsic motivation of each individual in the firm's employ.

3. Compensation Systems and Productive Turnover

Compensation systems serve as a selection device, or a way to attract and retain individuals with the desired skills and attributes, to an organization.²² It stands to reason, therefore, that changes in a compensation system will change the set of individuals that are attracted to and retained by the organization. When managers' goal is to transform an organization, part of that transformation involves turnover of personnel. Individuals who cannot work well or do not enjoy working in the new environment will leave. Individuals who were not attracted to the old environment may well be attracted to the new. The resulting turnover is desirable and will positively influence the performance of the firm.

The redesign of compensation systems is a powerful mechanism that decentralizes the turnover process. It does so by capitalizing on the process through which individuals self-select in or

groups completed during "breaks" from the experiment—a time during which they could do whatever they liked. He found that students who were paid for completing puzzles during the experiment period completed fewer puzzles during breaks than those who were not paid. He concluded that extrinsic motivation drove out intrinsic rewards. Notice that his experiment contains no measure of the effect of compensation on total productivity, but rather of compensation on productivity during artificially constructed "breaks" from tasks. Clearly, in a business setting total productivity is of major import.

²⁰ Lawler, Edward E., 1996, *From the Ground Up: Six Principles for Building the New Logic Corporation*, Jossey-Bass Publishers, San Francisco, 195.

²¹ Amabile, Teresa M, 1988, A Model of Creativity and Innovation in Organizations, *Research in Organizational Behavior* 10, 123-167.

²² See, for example, Lawler, Edward E, 1995, The New Pay: A Strategic Approach, *Compensation and Benefits Review* 27

out of an organization. If individuals know more about their own skills and abilities than do potential employers, relying on self-selection will help the firm attract and retain a better workforce.

A few examples, somewhat oversimplified, help illustrate how self-selection through compensation systems works. For example, for a firm where long-term employment is valuable, a compensation system offering a wage profile that is low relative to market in the early years of employment and high later on will attract individuals planning on a long career with the firm. It will not attract individuals who, for example, plan to work for a short time before returning to graduate school. A compensation system with a strong pay-for-performance component will attract individuals who believe they can perform well enough to earn the performance-contingent payoff. But individuals who know that their skills will not allow them to achieve the payoff will view the expected compensation as low. To such individuals, an organization offering less contingent pay would be more attractive.²³

Managers undertaking change efforts can harness the power of compensation system design to attract and retain the “right” individuals, and to help individuals who do not work well in the new regime select out of the firm. The sooner a new, effective compensation system is implemented, the sooner this process can begin. Postponing the implementation of new compensation systems forces managers to live with the counterproductive effects of the incumbent system on productivity and self-selection.

3.1. The Power of Self-Selection in Practice

The experience of our spin-off firms confirms the importance of the design of compensation systems in attracting managers with the “right” characteristics and motivating them to create value. Each firm faced a different challenge. In the case of Cooper Cameron, the challenge was to attract talented top managers from outside the parent firm to join the soon-to-be-independent company. In the case of Cytec, the challenge was to attract the “right” group of incumbent managers to lead the spin-off.

no. 4, July/August.

²³ My examples hold the net present value of the payoffs to various compensation alternatives constant and assume individuals select the highest expected net present value compensation scheme based on their knowledge of their own abilities. These examples, are of course, highly stylized and oversimplified. Thus, there are some restrictive assumptions being made to allow for the outcomes I describe in terms of self-selection. Most importantly, I am neglecting the role risk aversion, independent of ability and skill, plays in self-selection processes. In fact, a risk averse individual might prefer a more certain payoff profile independent of ability and skill. My examples assume that while risk aversion is present, the role it plays in the process of self-selection is a second-order effect at best.

Cooper Cameron's CEO and CFO were both hired from outside the firm six months before the spin-off. At that time these individuals were serving as CEO and CFO, respectively, for a public company in a related industry that was in the process of being sold. These hires brought Cooper Cameron depth of management and years of experience in running a publicly traded company. The CEO and CFO are individuals who, by their own admission, would not have considered working as division managers. Thus, making Cooper Cameron a freestanding public company granted it access to a new pool of managerial talent. Cooper Industries' top management felt that this infusion of experience and skill was necessary to turn around Cameron's performance.

The new top managers have strong views on the type of compensation package that is both attractive to them and best for the firm. It is based on an approach to executive compensation that is very different from Cooper Industries' "mysterious" bonuses. The new compensation system relies heavily on bonuses tied to objective performance goals and on equity-based compensation. In fact, the CEO and CFO insisted that they be compensated *solely in stock options*. Cooper Cameron's board of directors is compensated solely in stock options as well. The year following the spin-off, top managers and directors owned 4.87 percent of Cooper Cameron's stock—almost 6.5 times more than the corresponding total for Cooper Industries²⁴

At Cytec, the power of self-selection became apparent when American Cyanamid began to put together a top management team for the soon-to-be-independent company. Some managers had a choice of whether to go with the spin-off or continue with American Cyanamid—and not all of them chose to go. Self-selection based on the firm's compensation system was an important determinant of who chose to leave the parent to work at the spin-off firm. Among the concerns expressed by managers choosing which organization they would work for were job security, benefits, and the structure of pay packages. Taking a position at Cytec required giving up a generous Cyanamid retirement and benefits plan; taking on a pay package that was riskier, because it was strongly tied to stock price performance; and giving up what was expected to be a "job for life."²⁵ The decision to go to Cytec revealed a great deal about individuals' willingness to take on risk and about their confidence in their ability to manage effectively in a challenging situation.

²⁴ At the time of the spin-off, Cooper's directors and executive officers as a group owned directly or through options approximately 0.76 percent of the company's stock. In contrast, Cooper Cameron directors and executive officers as a group owned almost 6.5 times more stock and options. Their percentage ownership totaled 4.87 percent of Cooper Cameron's equity—1.89 percent was owned directly or through vested options, and an additional 2.98 in options that would vest by the year 2000.

²⁵ As it turned out, this was not the case. American Cyanamid was acquired by American Home Products in 1996 for \$9.6 billion. Following the acquisition many employees, including managers, lost their jobs.

Cytec's top management comprised nine former Cyanamid managers, each with a long career at the former parent. In fact, taken together Cytec's top management team had 193 years of work experience at Cyanamid. Nonetheless, Cytec's top executives identified themselves as individuals who were not of the Cyanamid mold—they described themselves as more entrepreneurial and more confident of their abilities. Their subsequent performance lends credibility to their self-assessment. As one executive put it:

What's surprising about our spin-off is that although the management team is steeped in experience with Cyanamid, we wanted to make radical changes. ...On paper, we didn't look any different than many Cyanamid managers, but we were. We were mavericks.

Cytec's top management believed that the design of their pay package would help create a performance-oriented culture and improve the firm's performance. The new management compensation package consisted of three components: salary, an annual bonus, and long-term compensation. The long-term compensation plan ran for three years and was based on targeted earnings and cash flow. Awards under the long-term plan consisted of grants of restricted stock (called performance shares) and cash payouts (called performance cash). Salaries and target bonuses were set below the industry median and were paid in cash. Long-term compensation was set between the median and the 75th percentile. This combination meant that a larger portion of management compensation was "at risk" than the industry norm. Nonemployee directors also received stock and stock options as part of their compensation. Cytec's CEO commented:

I am very pleased to have the lowest salary of my peer group and one of the best upside packages. Our compensation plan reflects our management philosophy. If we create value for shareholders, we do well. If we don't, we do poorly.

As part of its change in compensation systems, the company encouraged equity ownership at all levels of the organization. Employees could purchase Cytec stock through a savings plan in which the company matched every \$1 invested with an additional \$0.75. By the end of 1994, the year after the spin-off, employees had purchased approximately 14 percent of the company's stock.

Not everyone, however, preferred the experience of working in the "new" organization to working for American Cyanamid. Following its spin-off, Cytec experienced substantial turnover in its management ranks. But not all managers, particularly lower-level managers, had had the right to choose whether or not to go with the spin-off; so perhaps this turnover is not surprising. We would expect individuals who did not like or could not adjust to the new work environment to leave the organization, some voluntarily and some involuntarily.

In the final analysis, managers viewed the turnover as beneficial to the organization's change efforts. Cytec's chief financial officer explained:

Some people were so “Cyanamized” they just couldn’t change. Every time you wanted to try something new there was a fight.

Another top manager explained why, in his view, the turnover was both necessary and productive:

Ultimately, two thirds of the general managers and a somewhat smaller proportion of the top management team had to change. We struggled a lot with trying to be compassionate and giving people enough time to change. It was a difficult call, in part because in the beginning, before we had established ourselves, we ran the risk of having too many new people too early. In the end, we might have been too compassionate, because the reality was that people had to leave in order for the organization to change.

3.2. The Details Matter: When Self-Selection Backfires

Again, it is worth emphasizing that managers must pay close attention to the details of the design, implementation, and administration of a compensation system. These details also determine the success or failure of a compensation system as a selection mechanism. Although the optimal amount of turnover is not zero, not all turnover is good. Compensation systems can be set up in a way that induces turnover among the wrong group of people. For example, in an effort to reduce the size of the workforce, many organizations adopt voluntary early retirement packages that pay generous severance; but managers often express dismay that the “wrong people” take the package. And a 1991 Conference Board study confirms that it is not uncommon for self-selection to backfire. In a survey of employees of downsized firms, 22 percent reported that the “wrong people” had left the company.²⁶ It is simple to explain why this happens. Talented individuals with strong alternative employment opportunities can take an early retirement package and move on to another rewarding job. To individuals with more limited alternatives, the retirement package is less attractive.

For example, in 1991 General Motors announced that it would cut 74,000 jobs, among them a substantial number of white-collar positions. The company relied on attrition and an early retirement package. By 1993 12,000 white-collar workers had left the firm. Analysts noted, however, that “the problem is that the wrong people are taking the buyouts.” To counter this problem, GM eliminated that program and introduced a new program that required departures to be approved on a case-by-case basis. An analyst commented that “the approval process will keep the

²⁶ Findings as reported in “Work Force Reductions Will Continue Throughout Corporate America, 1993, *Business Wire*, July 13.

most valued employees from leaving. It may also prevent labor shortages caused when too many people leave a certain business unit within GM.”²⁷

4. Compensation Systems, Decentralization, and the Mobilization of Specific Knowledge

The power and productivity of decentralized decision making has been widely recognized. Studies of organizational change are replete with examples illustrating the benefits organizations reap through effective decentralization.²⁸ Indeed, numerous organizational change movements, including total quality management, employee empowerment efforts, and increased reliance on self-managed teams, rely on the effectiveness of decentralized decision making as a path to improved performance. What is often overlooked is the fact that the redesign of a firm’s compensation system is a key determinant of whether efforts to decentralize are productive or counterproductive.

Well-designed compensation systems play a critical role in both mobilizing the benefits and controlling the costs of decentralization. A primary benefit of decentralization is better decision making due to improved utilization of specific knowledge. By specific knowledge, I mean knowledge that is both valuable to decision making and cost to transfer among individuals.²⁹ Each individual in an organization has specific knowledge regarding his or her work and, in addition, the ability to create more knowledge. The fundamental characteristic of specific knowledge is its lack of transferability; it cannot be communicated to coworkers or managers without diminishing or destroying its value. It is impossible, therefore, for managers to specify with precision what each individual must do differently to bring about effective change. Thus, change efforts can harness valuable specific knowledge only by decentralizing decision making, at least to some extent.

Decentralization would pose few problems if all employees were so-called “perfect agents”; that is, individuals whose own interests automatically aligned themselves with the objective of the organization. This is, however, not the case. By definition, decentralizing decision making allows individuals more discretion; and because they are self-interested, this discretion increases the

²⁷ Haglund, Rick, 1993, “GM Tries Costly Way to Trim White-Collar Force,” *The Star-Ledger*, Newark, March 1.

²⁸ See, for example, Wruck, Karen Hopper, and Michael C. Jensen, 1994, Science, Specific Knowledge and Total Quality Management, *Journal of Accounting and Economics* 18, 247-287, 258-259.

²⁹ Valuable specific knowledge exists at all levels of the organization. For example, specific knowledge about corporate strategy or interdependencies across departments or divisions is likely to reside with upper management; specific knowledge regarding particular machines or production processes resides with employees on the factory floor; and specific knowledge of customers’ idiosyncrasies resides with sales personnel. Jensen, Michael C. and William H. Meckling, 1992, Specific and General Knowledge and Organization Structure, Chapter 9, *Contract Economics*, Lars Werin and Hans Wijkander, eds., 251-274.

potential for individuals to make decisions that are at odds with the goals of the organization.³⁰ Successful change efforts require that individuals become informed, educated and motivated to mobilize their valuable specific knowledge to move the organization toward its new objective. A well-designed compensation system is the most important tool managers have to align the objective of an individual employee with the objective of the organization. It follows that a new compensation system is a necessary complement to a new allocation of decision rights. Managers who leave their compensation systems untouched run the risk of exacerbating, rather than solving, their firm's performance problems.

Our spin-off firms illustrate of the importance of compensation system design in determining firm performance. What is remarkable about the turnaround efforts led by the managers of these firms is that they were not undertaken after intensive internal studies or studies performed by outside consultants revealed problems of which managers were formerly unaware. The changes were made, in large part, based on knowledge that had been present in the organization for many years. A critical difference, credited by managers, was a new compensation system that mobilized the effective use of that knowledge. The experience of these firms illustrates what is possible in organizations when existing specific knowledge is mobilized effectively. Their pre-spin-off performance illustrates the converse: how value can be destroyed by a company's failure to utilize knowledge effectively.

In general, increased decentralization requires a tighter link between pay and performance, and relatedly a focus on measuring performance outcomes rather than monitoring inputs (such as effort or specific actions taken). For this kind of compensation system to be effective, employees must have or develop the skills necessary to make good decisions and solve problems as they arise. If the requisite skills are not there, managers will have to invest time and resources in communication and educational efforts. It is my observation not only that such efforts can pay off in terms of making a compensation system more effective, but that a feedback loop works in the other direction. A well-designed compensation system fuels employees' interest in building their skills and so heightens the effectiveness of efforts to improve communication, on-the-job learning, and problem-solving skills.

³⁰ Jensen and Meckling label the cost of conflicts of interest between individuals and the organizations for which they work agency costs. Jensen, Michael C. and William H. Meckling, 1976, Agency Costs and the Theory of the Firm, *Journal of Financial Economics* 3, 305-360.

4.1. Communication, Learning, and Problem Solving

Effective communication, a learning-oriented work environment, and effective problem solving efforts are valuable elements in organizational change efforts. They are three important ways to promote the creation of new specific knowledge and the mobilization of latent specific knowledge. By increasing motivation and incentives, a well-designed compensation system increases the effectiveness of all three elements. In doing so, it increases individuals' ability to make productive contributions to the firm. The implementation of a new compensation system sends a strong message that the mission or direction of the organization has changed substantially and, consistent with this, that the organization will function differently going forward. It encourages individuals to get on board with change and to learn, among other things, what the new goal or mission of the organization is and how their decisions and behavior will affect the organization's progress toward that goal.

My study of practice confirms the above point. Many of the companies I have studied implement new compensation systems early in their change processes and concurrently launch intensive communication and educational efforts.³¹ Managers of these firms could have undertaken these efforts separately. In conversation, however, insist that the interplay between compensation and communication, learning, and problem-solving creates a powerful, persistent force for effective change that neither alone could generate.³² When I discuss this interplay with students, colleagues, and managers, many are skeptical. They argue that the firms I have observed must be "different," because, in general, employees would be incapable of understanding the "complex" performance measures that are typically a part of pay-for-performance plans. For readers who share this skepticism, I offer an interesting case study: the pay-for-performance plan of Cain Chemicals as documented by Michael Jensen and Brian Barry.³³

³¹ See, for example, Baker, George P., and Karen H. Wruck, 1989, Organizational Changes and Value Creation in Leveraged Buyouts: The Case of O.M. Scott & Sons Company, *Journal of Financial Economics* 25, p.163-190, Wruck, Karen Hopper and Michael C. Jensen, Science, Specific Knowledge and Total Quality Management, 1994, *Journal of Accounting and Economics* 18, pp. 247-287, Wruck, Karen Hopper, 1995, Financial Policy as a Catalyst for Organizational Change: Sealed Air Corporation's Leveraged Special Dividend, *Journal of Applied Corporate Finance* 7, number 4, pp. 20-37 and Wruck, Karen H., Ownership, Governance and Control of Organizations: Course Module Overview Note, Unpublished Manuscript, Harvard Business School, April 1997.

³² Organizational economics has a technical term for characteristics or sets of characteristics that reinforce one another—complementarities. Introduced by Paul Milgrom and John Roberts, both of Stanford University, two internal activities are defined as mutually complementary if "doing more of any one activity increases (or at least does not decrease) the marginal profitability of each other activity in the group." See Milgrom, Paul R. and John Roberts, 1992, *Economics, Organization, and Management*, Englewood Cliffs, N.J: Prentice-Hall Inc, p. 108. So in organizational economic terms, managers of the firms I have studied find that effective compensation systems and firm-wide educational efforts are complements.

³³ This example from practice draws heavily on Jensen, Michael C. Jensen and Brian K. Barry, 1992, "Gordon Cain and the Sterling Group (A)," Harvard Business School Case 9-492-021.

Cain Chemicals was created through a leveraged buyout of seven chemical plants from various firms. Immediately following the buyout, the company adopted a new compensation system that included an employee profit-sharing plan and an employee equity ownership plan. Both plans had the potential to contribute significantly to the compensation of hourly employees. The company had a highly unionized workforce with a long history of strained relations with management. Most of the hourly employees had a high-school education or less.

Cain Chemical's profit-sharing plan paid all employees a bonus based on companywide EBDIT: earnings before depreciation, interest, and taxes. Part of the challenge management faced was educating hourly employees about what EBDIT was and how their actions affected it. The company undertook this effort in an interesting way—each quarter, top management held a meeting with hourly employees in which they reviewed performance, beginning with safety and moving on to EBDIT, and showing how pricing, volume, and cost had contributed to or detracted from that quarter's performance. At the end of the meeting, profit-sharing checks were distributed.

Cain's CEO explained how the compensation and educational programs worked together:

The special meetings were a critical factor in our success—you have to keep the employees fully informed about what's going on. All seven plants got the report and checks within one week after the quarter closed, not three months later. We did this by visiting one or two plants a day. Because they received their profit-sharing checks immediately after discussing the quarterly results, employees understood where the money was coming from.

Shortly after the implementation of the new compensation system, one manager joked with hourly employees that "he didn't know what EBDIT meant either," but that they could assume it meant "everybody doing it together." After that, employees had T-shirts made with EBDIT on one side and "everybody doing it together" on the other. Surprisingly, given the historical recalcitrance of the unionized workforce, "everybody doing it together" became a rallying cry.

Despite the jokes, plant managers reported that their employees came to understand both the new performance measure and the new compensation system extremely well and very quickly—to the point of understanding quite precisely how their actions affected performance outcomes:

[EBDIT] was a very simple goal. People knew what to do. If they didn't, then they went and found out. Keeping the plant running smoothly at high rates had a big effect on EBDIT, so employees would anticipate things that led to downtime. They were quicker to step in and take charge when things went wrong.

We eliminated a lot of waste, we were getting things done more quickly, and people were having a lot of fun. The night shift would go off duty and people would stick around to see how things were going.

Employees could relate the pounds we produced per hour to the margins we were getting on our products. It was almost as if we had a taxi meter that tracked our output in dollars and pounds. The employees knew what EBDIT would be for the quarter and they knew what their share was. If they found a way to get another one million pounds out of the plant, they knew that was \$10 in their pockets; if they could shave one tenth of a cent off our unit costs, they knew that was another \$20.

The ability of Cain Chemical's employees to understand the new compensation system and respond to it in short order illustrates how a well-designed and well-implemented compensation system can quickly mobilize specific knowledge. It also illustrates the importance of education regarding an organization's new objective. It is hard to imagine that these employees would have changed their behavior so dramatically if they had been educated about EBDIT without an accompanying change in the reward system that paid them for their efforts. It is also hard to imagine that they would have changed their behavior if managers had not spent time helping them understand the new performance measure.

5. Compensation Systems, Organizational Inertia, and Resistance to Change

From the vast literature on organizational change, several themes emerge.³⁴ One is that many organizations suffer from inertia or become rigid and unable to adapt to new economic circumstances.³⁵ The fourth role of compensation systems is to address this problem. Specifically, well-designed compensation systems motivate individuals to overcome their resistance to change and to begin working productively toward a new objective. In emphasizing this function of compensation systems, I depart from the standard analysis of incentive alignment. I am calling attention to the way compensation systems help motivate individuals to overcome strong, and sometimes irrational, resistance to change. Such resistance arises, at least in part, from individuals' perception that change is extremely costly. Compensation systems are one way to provide individuals with benefits sufficient to outweigh their perceived cost of change.

³⁴ The vastness of the literature is attested to by the fact that, Van de Ven, and Poole (1995) identified over 1 million published articles in the field. Of the 1 million articles, they review 200,000 titles, screen 2,000 abstracts and critically review 200 articles. Van de Ven, Andrew H., and Marshall Scott Poole, 1995, Explaining Development and Change in Organizations, *The Academy of Management Review*, July, 510. Another review of the literature is provided in Barnett, William P. and Glenn R. Carroll, 1995, Modeling Internal Organizational Change, *Annual Review of Sociology* 21, 217-236.

³⁵ Age is typically identified as the primary source of inertia. For example, in Hannan and Freeman (1984)'s model of structural inertia, procedures, rules and practices become well established and therefore more difficult to change as the firm ages. Hannan, Michael T. and John Freeman, 1984, Structural Inertia and Organizational Change, *American Sociological Review* 49, 149-164. Abernathy and Utterback (1978) focus on the age of the product, rather than the age of the firm. Their work describes how, as a product matures, firms naturally turn their attention to efficiency in production (or process innovation) as opposed to new product innovation. The drive for efficiency in production shifts the firm's focus to smaller and smaller innovations, ultimately creating an organization incapable of change.

Research verifies that the demise of organizations can often be attributed to their inability to adapt efficiently—even when adaptation would make the organization and its employees better off.³⁶ In contrast, efficient adaptation takes place when an analysis of long-run costs and benefits dictates that change is optimal, and in response the firm undertakes change. Notice that my definition of efficient adaptation encompasses both incremental and discontinuous change. Discontinuous change will occur when, for example, there is an unanticipated major change in the economic environment.

Why does strong, inefficient resistance to change occur? One way to look for the answer is to draw on what we know about how individuals behave under difficult circumstances. Here, the theory and evidence on defensive and nonlearning behavior tells us a great deal. This work indicates that individuals are often poor processors of negative feedback. So poor, in fact, that they are capable of systematically ignoring or avoiding it altogether. Clearly, such behavior inhibits productive learning and change.³⁷

Organizations in which major change is required are often hit with a barrage of negative feedback. In fact, strong, persistent negative feedback—from customers, suppliers, employees, and/or financial markets—is an important signal that change is necessary. In spite of the feedback, individuals in an organization will often ignore, or fail to acknowledge and confront, valuable information that dictates the necessity of change.³⁸ When the avoidance of negative feedback by individuals is widespread and systematic enough to influence outcomes, it renders an organization incapable of efficient adaptation.³⁹ The inability to adapt results in a persistence of the status quo

Abernathy, William J., and James M. Utterback, 1978, Patterns of Industrial Innovation, *Technology Review* 80, 2-9.

³⁶ See for example, Abernathy, William J., and James M. Utterback, 1978, Patterns of Industrial Innovation, *Technology Review* 80, 2-9. Henderson, Rebecca M. and Kim B. Clark, 1990, Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms, *Administrative Science Quarterly* 35, 9-30. Christensen, Clayton M., 1997, *The Innovators Dilemma: When New Technologies Cause Great Firms to Fail*, Harvard Business School Press, Boston.

³⁷ Argyris and others argue that this behavior stems from basic characteristics of human nature: the desires to avoid being wrong, to remain in control, and to avoid conflict and emotional pain. The causes and effects of defensive behavior are analyzed extensively by the prolific Argyris. Perhaps his most accessible piece is Chris Argyris, 1991, Teaching Smart People How to Learn, *Harvard Business Review*, May-June p. 6-12.

³⁸ Indeed scholars studying change management, such as Michael Beer and John Kotter, identify and address this issue and outline alternative approaches for creating enough pressure or dissatisfaction to motivate individuals to participate effectively in the change process. See e.g., Beer, Michael, 1991, *Leading Change*, Harvard Business School Case 488037, and Kotter, John P., 1996, *Leading Change*, Harvard Business School Press: Boston, 35-46.

³⁹ Specifying the circumstances under which counter-productive behavior on the part of individuals aggregates to characterize organizational behavior is a difficult problem. I hypothesize that strong alignment of a well-established organizational paradigm (e.g., strategy, structure and systems) fosters such aggregation. Under this hypothesis, widespread defensive behavior on the part of individuals, reinforced by a well-established organizational paradigm, generates inertia. Note that this hypothesis contrasts with previous academic research. Although wide spread defensive behavior and a strong organizational paradigm are likely to be positively correlated with firm and/or product age, two factors that researchers find are correlated with inertia, age is not the underlying causal factor.

long after it is apparent to many, both inside and outside the firm, that continuing the status quo is counterproductive.

There is evidence that, prior to the spin-offs, both Cooper Industries and American Cyanamid avoided incorporating negative feedback into their decision-making. This avoidance hampered managers' ability to turn around the performance of the business units they eventually spun off. Cooper Cameron began to perform poorly three years before its spin-off, during a slump in the oil industry. This performance significantly reduced the earnings of the parent company as a whole. Top management hired outside consultants to determine whether the business unit's performance was attributable entirely to the slump or whether poor management played a role. The consultants' report identified management as a problem. The divisional president challenged the report, insisting that performance was driven by factors outside his control. Top management accepted his view for several years before opting for a spin-off.

One of Cooper Cameron's top managers, who worked for Cooper Industries at the time the consulting study was conducted, described how that process played out:

Booz Allen was hired to do a market analysis of [Cooper] Cameron. In their report, Booz Allen concluded that we were losing market share. The president of Cameron was able to discredit the Booz Allen report and convince ...other top managers [incorrectly] that we hadn't lost market share. There was no management or organizational response to the data from Booz Allen. But their data shouldn't have been necessary. Our own financial statements provided us with data that there was a problem.

At American Cyanamid, negative feedback was avoided in another way. It was made undiscussable; the fact that the Chemicals division (which would become Cytec) was a poor performer was understood but was not discussed openly with employees. The fact that the subject was avoided left employees with an uneasy feeling regarding their future, but with no way to take productive action.

After the spin-off CEO took over management of the business unit, one of his first actions was to hold a cafeteria meeting for Chemicals employees—an uncommon event at American Cyanamid. The new business unit head described the weak state of the chemicals businesses. He made a point of emphasizing his criteria for good performance: “We will not be judged based on any fancy plans or who we know. ...We will be judged on our results.” Another top manager described the impact of this meeting:

It was the first time anyone had said out loud that we had a problem, described what the problem was and how big it was. People knew there were a lot of things wrong at Chemicals. They knew there were too many managers, that

there was inefficiency and waste. But they didn't know the overall financial picture. Fry [the new CEO] made a point of being open about performance and educating people on what we meant by it. It was a watershed event.

The inability to discuss poor performance openly also plagued other parts of the parent company. A former director reported that American Cyanamid's top managers insisted that the company's failures in research and development were attributable to "insufficient resources and attention to pharmaceuticals." In taking this view they avoided discussing whether the firm was wasting resources and continued to approve ever increasing, but equally unproductive, outlays on additional R&D.⁴⁰

A well-designed compensation system is a valuable tool for managers tackling the problem of resistance to change. To overcome such resistance, a compensation system must increase the cost to individuals of maintaining the status quo and/or increase the benefits of change. The goal is for individuals to view the benefits of change as greater than the cost, and thus create an environment in which people are willing to let go of attachments to old behaviors and to open up to new ways of working. To accomplish this, the shift in costs and benefits precipitated by a new compensation system must be abrupt, large, clear and understandable to the individuals affected. This was certainly the case at both Cooper Cameron and Cytec. Managers of both firms report that radical changes in compensation motivated individuals to overcome their resistance to change, to accept negative feedback more productively, and to make better decisions.

It is worth considering that the substantial cost of change to individuals is one reason that compensation packages in turnaround situations, particularly for executives, are often lucrative and are strongly tied to the firm's performance, particularly stock value. A very high payoff for success is required to attract talented managers to the challenge of restructuring. In highly visible and contentious situations, for example, when massive layoffs are required, the personal and professional costs are extremely high; they can include, for example, negative publicity and threats of physical violence to an executive and his or her family. For perhaps this reason, we observe compensation packages where the payoff for success is large enough to endow the families of top management.⁴¹

⁴⁰ Wruck, Karen H. and Sherry P. Roper, 1997, American Cyanamid (A): Board Response to a Hostile Takeover Offer, Harvard Business School Case 9-897-048 (Rev. 12/3/97), p.5 and related teaching note.

⁴¹ This was the case, for example, in the compensation package created to provide Bill Anders with the incentives to restructure General Dynamics. General Dynamic's restructuring is analyzed in detail in Dial, Jay and Kevin J. Murphy, 1995, Incentives, Downsizing, and Value Creation at General Dynamics, *Journal of Financial Economics*, Vol. 37, No. 3. This is also the case in the controversial compensation payouts received by Al Dunlap, for example for his successful restructuring of Scott Paper. See Gilson, Stuart C., 1997, Scott Paper Company, Harvard Business School Case and Associate Teaching Note, 9-296-048 and 5-298-088.

6. The Case for Changing Compensation Systems Sooner: Crisis, Change, and the Power of Misalignment

Thus far, I have discussed each of the four ways in which compensation systems can facilitate (or hinder) productive organizational change. The remaining issue is one of timing: if it is necessary to change compensation systems, when is the right time? This question raises, in turn, the difficult issue of how most effectively to sequence specific steps in a process of organizational change. There is a great deal of controversy over how the steps of change should be properly sequenced. Models of change put forward in the academic literature often overlook this issue. When the sequencing issue is addressed, it often is based on life-cycle or evolutionary models that broadly describe inevitable stages in a firm's life occurring independently of management action.⁴² In the applied literature, models of change tend to be normative and prescriptive. They often set forward a sequence of steps managers *should* follow to ensure productive change, rather than documenting and statistically assessing what managers actually do.⁴³

While both are useful and interesting, the gap between the academic and applied literature is substantial. For example, there is no academic model that generates a definitive, optimal sequence of steps to organizational change. Neither is there applied work that provides a definitive, structural model of the change process. My approach follows a middle path. Based both on theory and study of practice, I take the position that firms should, at a minimum, revamp compensation systems early in the change process.

Treating the question of *when* to introduce changes in compensation systems as an empirical one, I report what I have observed in organizations undertaking highly successful restructuring efforts.⁴⁴ Typically, managers of these firms implement compensation systems *after* they identify and adopt a new overarching objective for the firm, but *before* they completely specify how that objective translates into a new strategy and/or structure. The identification and adoption of the new

⁴² Van de Ven and Poole identify four classes of change models. Of the four, only two classes of models, life cycle and evolutionary, have prescribed modes or steps of change and these are dictated by a fixed sequence of events that have little, if anything, to do with management decision making. In the other two classes of models, teleological and dialectical, the steps of change are constructive and emerge as the change process takes place. Van de Ven, Andrew H., and Marshall Scott Poole, 1995, Explaining Development and Change in Organizations, *The Academy of Management Review*, July, 510.

⁴³ Two examples of work along these lines are Kotter, John P., 1996, *Leading Change*, Harvard Business School Press, Boston and Beer, Michael, 1991, *Leading Change*, Harvard Business School Case 488037.

⁴⁴ See, for example, Baker, George P., and Karen H. Wruck, 1989, Organizational Changes and Value Creation in Leveraged Buyouts: The Case of O.M. Scott & Sons Company, *Journal of Financial Economics* 25, p.163-190, Wruck, Karen Hopper and Michael C. Jensen, Science, Specific Knowledge and Total Quality Management, 1994, *Journal of Accounting and Economics* 18, pp. 247-287, Wruck, Karen Hopper, 1995, Financial Policy as a Catalyst for Organizational Change: Sealed Air Corporation's Leveraged Special Dividend, *Journal of Applied Corporate Finance* 7, number 4, pp. 20-37 and Wruck, Karen H., Ownership, Governance and Control of Organizations: Course Module

objective manifests itself in a new set of aggregate performance measures, such as shareholder value creation or earnings before depreciation, interest, and taxes (EBDIT). These measures are then tied to compensation through, for example, management or employee share ownership plans, profit-sharing plans, and/or gain-sharing plans.

It is useful to juxtapose my observations regarding the timing of changes in compensation systems with more conventional approaches to managing change. It is not uncommon for scholars and practitioners to specify a sequence of steps that should be take in a specified order to bring about productive change. Perhaps the most common change paradigm draws the sequence of its steps for productive organizational change from the three Ss—(1) strategy, (2) structure, and (3) systems. The recommendation is that a firm begin by identifying and implementing the appropriate strategy, then create a structure consistent with that new strategy, and finally deal with the organization's systems, including its compensation systems.⁴⁵

Why do my observations and conclusions stand in contrast to the conventional wisdom? The answer lies in the choice of performance measures. It is important to note that in my examples the performance measures on which compensation is based are quite general—general enough to allow for substantial redesign in strategy and structure while retaining their relevance. Performance measures of this kind avoid a potential problem often used to justify the position that changes in compensation should be made late in the change process.⁴⁶ Specifically, it is often argued that premature adoption of a new compensation system exerts a counter-productive influence on strategy. But there is a flaw in this logic. What is overlooked is the fact that specifying a new objective and tying that objective to compensation does not define a firm's strategy. Rather, it establishes a goal against which alternative strategies can be productively evaluated and, in addition, energizes individuals in the organization to strive toward that goal.

Overview Note, Unpublished Manuscript, Harvard Business School, April 1997.

⁴⁵ For example, Beer and Eisenstat (1990) identify "six steps to effective change." In their model, changes in structure and systems, including compensation systems, take place in step five. Making changes in structure and systems earlier, they argue is "likely to backfire." Since step six is "monitor and adjust strategies in response to problems in the revitalization process," structure and systems are in fact the last thing that changes before the fine tuning begins. Beer Michael, Russell A. Eisenstat and Bert Spector, 1990, Why Change Programs Don't Produce Change, *Harvard Business Review*, reprint 900601. Kotter (1996) proposes an eight-stage process for creating major change in organizations. Changing structures and systems is the also the fifth step in his program, and like the three-S approach follows the development of vision and strategy (his step three). Kotter, John P., 1996, *Leading Change*, Harvard Business School Press, Boston.

⁴⁶ See, for example, Kotter, John P., 1996, *Leading Change*, Harvard Business School Press, Boston, Beer, Michael, 1991, *Leading Change*, Harvard Business School Case 488037, and Beer Michael, Russell A. Eisenstat and Bert Spector, 1990, Why Change Programs Don't Produce Change, *Harvard Business Review*, reprint 900601.

In the organizations I studied, the problem of premature strategy setting did not surface. It was avoided, in part, because initial changes in compensation utilized highly aggregate performance measures such as stock return or a measure of the firm's cash flow. Compensation plans based on more refined and disaggregate performance measures were not introduced until after the firms' new strategy and structure were more fully developed. In addition, some firms made changes to compensation systems only at the top levels of the firm. Changes in compensation for lower-level employees came later in the process, if at all. If motivating top managers to identify and implement an effective new strategy is a top priority in the early stages of a change process, which is likely, this approach makes a great deal of sense. Tying top management compensation to critical new aggregate performance measures motivates these key decision makers to identify an effective new strategy. Having top managers develop a new strategy under the old compensation system is likely to result in a weaker strategy—one that optimizes old, outdated performance measures rather than new, more appropriate ones.

In summary, it is my position that potential benefits of effective compensation systems are so great that it makes little sense to wait to change them. The argument for tackling compensation systems—especially top management compensation—is particularly compelling once the overarching performance measures for the firm are chosen.

A second reason to change compensation systems early is that they can help generate a “crisis” or “sense of urgency” that facilitates productive change. Researchers have documented that the process of organizational change is often discontinuous and abrupt.⁴⁷ Some go so far as to recommend that managers create a “crisis” of some kind as a way of building internal momentum for change.⁴⁸ Even if we agree, which many of us would, that a crisis can serve as a catalyst for

⁴⁷ Much of the theory and evidence on discontinuous change is developed in the context of the adoption of new technologies. Tushman and Romanelli (1985) and Tushman and Anderson (1986) utilize a punctuated equilibrium model of evolutionary change. Their model of change is based, in part, on observation that “technology evolves through periods of incremental change punctuated by technological breakthroughs that either enhance or destroy the competence of firms in an industry.” Tushman, Michael L., and Elaine Romanelli, 1985, *Organizational Evolution: A Metamorphosis Model of Convergence and Reorientation*, *Research in Organizational Behavior* 7, 171-222. Tushman, Michael L. and Philip Anderson, 1986, *Technological Discontinuities and Organizational Environments*, *Administrative Science Quarterly* 31, 439-465. Hendersen and Clark (1990) identify the difficulty firms have in incorporating “small” technological breakthroughs that “change the architecture of a product without changing its components.” Henderson, Rebecca M. and Kim B. Clark, 1990, *Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms*, *Administrative Science Quarterly* 35, 9-30. Christensen (1997) explores the difficulties large, successful firms have in adopting new technologies, and how this can lead them to fail. Christensen, Clayton M., 1997, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*, Harvard Business School Press, Boston.

⁴⁸ Kotter, for example, emphasizes the need to create “a sense of urgency.” Kotter, John P., 1996, *Leading Change*, Harvard Business School Press, Boston [See especially, pages 35-49]. Kotter goes on to recommend courses of action managers can take to achieve this including, allowing financial losses or major strategic errors to occur, eliminating excessive executive perquisites, providing more data and information to employees and managers, and encouraging

productive change, we must acknowledge that not all crises serve this function. In addition, managers who do create a crisis (or manage themselves into one) often have difficulty sustaining the change once the immediate problems are past. This raises an important issue: when are crises followed by productive organizational change, and when aren't they?

It is my observation a crisis serves as a catalyst for productive change when it is part of a set of changes that create misalignment among a firm's incumbent strategy, structure, and systems. The persistence of the status quo draws its strength from alignment. When a firm's strategy, structure, and systems are aligned, its components are consistent, self-perpetuating and self-reinforcing. This alignment is a source of strength for a firm operating in a stable economic environment. Unfortunately, however, such alignment becomes a major impediment to change when a firm must adapt to a new economic environment. As a result of alignment, individuals making efforts to change will feel pressured to revert to business as usual. Indeed, the ability of alignment to undermine change explains why incremental approaches are often ineffective; a small step toward change is quickly stomped out by a well-entrenched, highly aligned design. Part of the challenge of "breaking the code of change," therefore, is figuring out how to break the self-perpetuating, self-reinforcing set of characteristics that in many cases have brought great success in the past.

The power of crisis to bring about organizational change emanates from its ability to break the hold of alignment on an organization. Specifically, creating a jarring *misalignment* among elements of the organization's strategy, structure, and systems is a powerful first step in beginning a process of value-creating organizational change. Initially, the misalignment facilitates change by throwing the system into disequilibrium. This disequilibrium is productive when it throws the organization sufficiently off balance to create a sense of urgency around regaining alignment *and* creates enough discontinuity with the past that the process of realignment does not result in a regeneration of the status quo.

A new compensation system, by generating a massive shift in the costs and benefits of perpetuating the status quo, can serve both as part of a crisis and as a way of ensuring that a crisis is followed by permanent, and not temporary, change. Implemented early in the change process, a well-designed compensation system generates productive misalignment by creating a gap between performance expectations and the incumbent way of doing business. Ideally, it leads to the establishment of a new set of performance measures and standards that are too challenging for the

more honest discussion. As another example, Beer (1991) describes the importance of creating "dissatisfaction with the status quo" in order to create momentum for change and suggests ways in which firms can generate this kind of dissatisfaction. Beer, Michael, 1991, *Leading Change*, Harvard Business School Case 488037.

company to them by continuing the status quo. In other words, individuals in the organization realize that they “can’t get there from here” unless they make dramatic changes in their behavior.

7. In Conclusion

We know that incumbent compensation systems are contributors to poor performance in underperforming organizations. Why wait until later to change them? Doing so only prolongs an organization’s problems and inhibits efforts to promote organizational change. It makes little sense to postpone reaping the benefits of effective compensation once they become available, and they become available sooner than is widely recognized. In addition, lack of complete information and/or analysis regarding the firm’s future direction is not a strong reason to postpone the implementation of a new compensation system. When compensation is based on aggregate performance measures, it not only allows sufficient flexibility to accommodate major changes in strategy but productively influences the analysis conducted to determine strategic direction. A new, effective compensation system will increase the quality and effectiveness of other aspects of the change process as well.

The risks of changing compensation, especially top management compensation, early in the process are relatively low, and the potential payoff is high. The information necessary to make the change effectively is minimal, whereas the cost of not taking action or of implementing an unsuccessful change program is great.

For readers still attached to the notion that changes in compensation systems cannot or should not be made until late in the process, it is useful to revisit the characteristics of human behavior that underlie the power of compensation systems as extrinsic motivators. Compensation systems are powerful motivators not because individuals blindly and automatically chase monetary rewards. In fact, most of us would agree that individuals are more thoughtful than that and value many things more highly than monetary rewards. Rather, compensation systems are powerful motivators because organizations are populated by individuals who want to “do the right thing” but often have difficulty accepting negative feedback, do not understand clearly what the right thing is, and/or get little feedback on how their actions affect performance. Worse yet, they sometimes get negative feedback for positive performance. Well-designed compensation systems help communicate the definition of outstanding performance and tie an individual’s success to progress toward that goal. In doing so, they help align individuals’ goals with those of the organization, and help individuals learn how they can best contribute to performance. These are the ways that well-designed and effectively implemented compensation systems can serve as a powerful force for productive organizational change.