

ALSO BY SIMON HEAD

The New Ruthless Economy

MINDLESS

*Why Smarter Machines
Are Making Dumber Humans*

SIMON HEAD

BASIC BOOKS

*A Member of the Perseus Books Group
New York*

CONTENTS

	Introduction: Toward a New Industrial State.....	1
1	Inside the Belly of the Beast.....	15
2	Walmart and Amazon.....	29
3	A Future for the Middle Class?	47
4	Managing the Human Resource.....	63
5	The Case of Goldman Sachs.....	79
6	Emotional Labor	103
7	The Military Half.....	129
8	The Nuclear Half	147
9	The Chinese Model.....	165
10	Any Way Out?	185
	<i>Notes</i>	195
	<i>Acknowledgments</i>	211
	<i>Index</i>	215

INTRODUCTION

Toward a New Industrial State

ALTHOUGH INEQUALITY OF INCOME AND WEALTH IN AMERICA HAS been growing steadily for the past forty years, it was with the Wall Street crash of 2007–2008 that this disparity took on lurid, visible form with the contrasting fortunes of the winners and losers. On the winning side, with their big bonuses, were many Wall Streeters who themselves bore responsibility for the crash. On the losing side were victims of the crash on Main Street, burdened with high unemployment, crushing personal debt, falling real wages, and shrinking personal wealth propelled by housing foreclosures.

By grim coincidence, detailed statistical evidence of how extreme American inequality had become also appeared during the crisis year of 2007. The data revealed the great good fortune of the super rich—of the richest 1 percent, 0.1 percent, and even the richest 0.01 percent of Americans. The share of total income of the top 1 percent rose from 8 percent in 1974 to 18 percent in 2007 and from

9 percent to 23.5 percent if capital gains and income from investments were included. The equivalent share of the richest 0.1 percent of Americans rose from 2.7 to 12.3 percent and the share of the very richest, the top 0.01 percent, from less than 1 percent to 6 percent during the same period.¹

The reverse side of this massive concentration of income and wealth at the earnings pinnacle—unprecedented since the pre-1914 Gilded Age—is the stagnation or fall in the real incomes of virtually everybody else. The growth of median annual earnings of most Americans has been spectacularly weak, irrespective of educational attainment. Between 1980 and 2006 the median annual earnings of fully employed entry-level workers between the ages of twenty-five and thirty-four with a bachelor's degree or higher increased by just \$1,000 in constant 2006 dollars, from \$44,000 to \$45,000, for a total percentage increase of just 2.27 percent over a twenty-six-year period, or an increase of less than 0.1 percent a year. The real earnings of those with some college education but with less than a four-year bachelor's degree fell by \$5,300 over the same period, or a percentage fall of 14.5 percent. For those with a high school diploma or equivalent, the comparable figure was a fall of \$5,200 in constant dollars, for a total percentage fall of 15.3 percent.²

Unless soon reversed, these decades of income stagnation or decline for the majority threaten something fundamental to American identity that for more than two centuries has set the United States apart from its old European mother countries: the confidence of most Americans that through education and hard work, they can overcome the barriers of birth and inheritance and rise as far as their talents will take them. This confidence is draining away as the barriers of American class strengthen, shrinking the life prospects of what may now be a majority of Americans and including much of the middle class among the newly disadvantaged.

As its title suggests, this book will look at the role of information technology (IT) as a driver of this inequality. By making us dumber, smart machines also diminish our earning power. But the machines that do this are not the automating, stand-alone machine tools of the 1950s, or even the stand-alone mainframes of the 1960s and 1970s, but vast networks of computers joined by software systems and the Internet, with the power to manage the affairs of giant global corporations *and* to drill down and micromanage the work of their single employees or teams of employees. There now exist in the US economy of the new century these very powerful agents of industrialization, known as *Computer Business Systems (CBSs)*, that bring the disciplines of industrialism to an economic space that extends far beyond the factories and construction sites of the industrial economy of the machine age: to wholesale and retail, financial services, secondary and higher education, health care, “*customer relations management*” and “*human resource management (HRM)*,” public administration, corporate management at all levels save the highest, and even the fighting of America's wars.

CBSs are being pushed by business academics, especially at the Massachusetts Institute of Technology (MIT), management consultants such as Accenture and Gartner, and IT companies such as SAP, IBM, and Oracle, and embraced by corporations for their efficiency. But they are not well understood beyond these specialist communities engaged in their creation, marketing, and servicing. These systems are today rather as black holes once were before black holes were fully discovered. Astrophysicists knew that there were things out there in the cosmos exerting a gigantic gravitational pull over everything that came into contact with them, but they did not yet know exactly what these things were. CBSs are the semidiscovered black holes of the contemporary economy.

One measure of their obscurity is that there is no generally

accepted name for them. Some of the most influential economists doing work in the field call them *Computer Business Systems*, and I am following their example here. But they have also been known as *Enterprise Systems* and by several other names and activities closely associated with them at various stages of their history: *Business Process Reengineering (BPR)* in the early and midnineties, *Enterprise Resource Planning (ERP)* in the mid- and late nineties, and the *Balanced Scorecard (BSC)* throughout the 1990s and into the new century. Yet despite this obscurity and lack of a fixed identity, evidence occasionally surfaces showing how much the corporate sector relies on these systems and how heavily it has invested in them.

In 1995 a report commissioned by the Big Three accounting companies reported that 75 to 80 percent of America's largest companies were engaged in Business Process Reengineering and "would be increasing their commitment to it over the next few years."³ A 2001 report cited by economists Eric Brynjolffson of MIT and Andrew McAfee of the Harvard Business School estimated that in 2001, investment in ERP systems accounted for 75 percent of all US corporate IT investment. Typically, the introduction of CBSs costs large corporations hundreds of millions of dollars, and their full implementation can take years to achieve. In the early 2000s, Cisco Systems budgeted \$200 million to be spent over three years for its CBS upgrade.⁴ This management "giantism" is also a global phenomenon. In China leading American management consultants are devoting much of their effort to the introduction of SAP systems to Chinese state enterprises undergoing privatization.⁵

The human side of this new industrialism can easily get lost in the abstract, theoretical world of macroeconomics and management science. In the first machine age the working class occupied a world apart, tethered to factories and assembly lines and bearing

the full rigors of industrialism. In the new machine age, the working class can be all of us. The new industrialism has pushed out from its old heartland in manufacturing to encompass much of the service economy, and it has also pushed upward in the occupational hierarchy to include much of the professional and administrative middle class: physicians as well as call-center agents; teachers, academics, and publishers as well as "associates" at Walmart and Amazon; bank loan officers and middle managers as well as fast food workers.

In the first machine age, the primordial conflict was not only about wages and benefits but also about the pace of work, the speed at which the automatic machine and the assembly line would run, and so the rate at which human as well as physical capital would be depleted. With the coming of the networked computer with monitoring software attached, industrial regimes of quantification, targeting, and control now pervade the white-collar world: how many patients, litigants, customers with complaints, students with theses, and future home owners with mortgage applications have been processed or billed per day or week, and how many *should* be processed or billed, because the digital white-collar line is subject to speedup no less than its factory counterpart?

White-collar professionals subject to relentless targeting and speedup have to wonder whether they, like shop-floor employees at Walmart and Amazon, are being worked and worked until they too become depleted as *human resources (HR)*, victims of burnout, then "let go," to be thrown onto the human slag heap just like the nineteenth-century proletarians of Émile Zola's great novel about the coal miners of northern France, *Germinal*. In the first machine age, the relations between men and machines were on display in the operations of the factory floor. The abuses that took place were visible to the outside world, the raw material of radicalism and reform.

In the new machine age, the workings of the white-collar line are hidden in the innards of servers and software systems. They are also cloaked in the mystique and prestige of *science* and *high technology*. They now need to be brought into the open.

This is the production world of IT, which leaves behind Steve Job's lustrous and indulgent kingdom of iPods and iPads and opens up an austere, puritan republic in which the relationship between IT and its users is turned on its head. In the Steve Jobs world, the products of IT are our servants and we have the freedom to do what we want with them (though businesses, for their own purposes and profit, closely watch how we exercise this freedom). On the production side of IT, the relationship is transformed and the systems dominate. They enforce the rules that determine how work should be done and with a power and speed unthinkable in the predigital age. But although the systems enforce the rules, they do not make them; they have no will of their own. The rules are the work of a number of interested parties: the senior executives who know broadly what they want the rules to look like, the system providers such as IBM and SAP who supply products whose designs are close to what the executives want, and the corporations' own in-house designers who can tweak the purchased products to account for local needs.

CBSs are amalgams of different technologies that are pulled together to perform highly complex tasks in the control and monitoring of businesses, including their employees. The technologies of the Internet are critical to CBSs because they provide the foundation for computer networks that can link the workstation of every employee or group of employees within an organization to that of every other, irrespective of location and status—from a chief executive officer (CEO) in New York to a group of claims processors in Bangalore, India.

Products known as “data warehouses” and “data marts” are also critical to the CBS control regime. Data warehouses contain the gigantic quantities of information needed to store data on millions of transactions performed daily by tens of thousands of employees—the raw material of the system. Data marts “cleanse” and order this data so that it can be used to evaluate performance in real time and in line with matrices established by management. Once data warehouses and data marts are fused with the monitoring capabilities of CBSs, then the building blocks of a very powerful system of workplace control are in place.

Most CBSs also contain a third critical element: expert systems that mimic human intelligence in performing the cognitive tasks that are integral to the business processes to be managed by the system. Their presence within the system is essential if complex interactions between humans, as in health care, higher education, customer service, and human resource management, are to be fully subject to the industrial disciplines of measurement, standardization, and speed. The most notorious example of such industrialization via expert systems is their use by health maintenance organization case managers to rule on the treatments that patients should or should not receive from their physicians. A doctor may send in a bill for treatment, but the HMO may refuse to pay it because the treatment did not conform to the HMO's “best practice” as defined by the HMO's own medical experts and as embedded in the rules of the system.

THERE ARE PRECEDENTS in American business history for this pulling together of technologies to form a single technology, performing highly complex tasks. It is what Henry Ford achieved with the technologies of mass production at his Highland Park and River Rouge plants during the second and third decades of the twentieth

century. The Rouge plant in particular was for its time a miracle of technology integration, fusing the activities of steel mill, stamping plant, machine shop, and assembly line, transforming the raw materials of iron and steel entering the Rouge at one end into the finished and tested Model T coming out at the other.

The Ford regime is illuminating in another way, because it provides a conceptual framework that makes sense of today's CBSs. This conceptual framework pivots upon a single and modest word, *process*, a word that is nonetheless omnipresent and dominant in the contemporary literature of American business schools, management consultants, corporate mission statements, and "system providers" such as IBM, SAP, and Oracle. Modest it may be, but *process* probably carries more historical baggage than any other single word in the entire corporate vocabulary.

Much of this baggage dates from the mass-production regimes of Ford's own time. Ford defined mass production as "the focusing upon a manufacturing project of power, accuracy, economy and speed,"⁶ and these were the paramount characteristics of the processes of automobile production in the Ford plants: the progress of the embryonic Model T along the way stations of production from steel mill to testing station, always following a rigorously timed and standardized sequence of operations.

One of the central distinctions in the sociology of work is between "process" and "practice." *Process* we are already familiar with; it refers to a series of operations and how they relate to one another. *Practice*, on the other hand, refers to the activities that can inhabit each operation in the process and especially to the accumulation of tacit knowledge and skill that employees bring to bear in order to perform well such embedded tasks. In the mass-production regime perfected by Ford, the distinction between "practice" and "process"

withers away. "Process" reaches down from the commanding heights, pushes "practice" aside, and extends its domain to the most humble activities in the plant. Thus, in the Ford plants, there was not only the process of making the Model T from steel mill to testing station, but also the process of assembling engine pistons and rods where time and motion studies were applied to eliminate four hours' worth of walking time in the assembler's daily routine.⁷

There was also a second axis of process on display at the Ford plants that, although less resonant in the business history of the twentieth century than the assembly line, has been no less central to the working of the mass-production model. Managers were needed to ensure that the huge, sprawling mechanism of the plant, with its myriad processes both macro and micro, was kept running on an even keel and did not dissolve into chaos. There had to be a continuous flow of information arising from the shop-floor processes, traveling upward through layers of management, conveying to senior managers that processes were or were not running as they should and with production targets being met or not met.

The best account we have of these turn-of-the-century management processes is found in Alfred Dupont Chandler's *Visible Hand: The Managerial Revolution in American Business*,⁸ one of the very few great books yet written about management. One might say that whereas both the macro and the micro processes of production were *horizontal* in the sense that their constituent operations followed one another in a precisely calibrated sequence, the processes of management were *vertical* because they consisted of an upward flow of information that rose from the shop floor through layers of management, eventually reaching the corporate pinnacle.

The ubiquity of the word *process* in the contemporary American management literature points both to the descent of today's

processes from those of the Ford era and to the differences between the two generations of process. Yet these differences, overwhelmingly bound up with the role of IT in modern-day process, accentuate aspects of process that are usually thought of as belonging to the industrial rather than the postindustrial era: the speed of processes, their standardization, and their susceptibility to timing and control from above. Such tightening and acceleration of contemporary process through IT are evident both in the case of horizontal assembly-line processes, especially with their transfer from the blue-collar to the white-collar world, and in the vertical management processes that in their contemporary incarnation I will call *Corporate Panoptics* (CP). In the early twenty-first century, the chief redoubt of processes both horizontal and vertical has been the Computer Business System.

There is also a critical difference between CBSs and all the other production systems that have featured prominently in the history of capitalism during the past 250 years—beginning with Adam Smith's description in *The Wealth of Nations* of an eighteenth-century pin factory and continuing with Marx's account of a mid-nineteenth-century English textile mill in volume 1 of *Das Kapital*, then the early description of the Ford system by Horace Arnold, influential in its time, and then most recently the account of Japanese lean production in the auto industry by Womack, Jones, and Roos in *The Machine That Changed the World*.⁹

With these production regimes of the machine age, the systems took on visible forms in ways that could illuminate, often dramatically, the interaction between men and machines. In *The Wealth of Nations*, Adam Smith gives a vivid sense of the pin makers as proto assembly-line workers, each performing a micro task of pin manufacture. Marx notoriously never entered a factory, but his harrowing

account of the exploitation of child labor in mid-nineteenth-century English textile mills drew on the evidence of the official factory inspectors who did make visits and whose reports eventually led to the outlawing of child labor in English factories.

The assembly line has been a dominant image of the machine age because the line and its workforce could be visited, watched, photographed, and even dramatized in the movies—notably by Chaplin in *Modern Times* (1936). But what are the visual manifestations of CBSs—a concrete blockhouse somewhere in New Jersey housing the huge servers needed to handle the gigantic quantities of information yielded by the systems, or employees staring at rows of flickering computer screens, receiving their instructions online and then keywording in their responses or, if working in call centers, speaking to customers on the telephone? This visual poverty elevates the importance of the trade literature on CBSs put out by their leading creators—SAP, IBM, and Oracle—as primary sources about what the systems are and how they work.

THIS BOOK OPENS up the largely hidden world of CBSs and explores the ideas and practices of the corporations, consultants, and management theorists who sustain them. This is a missing piece of the economic jigsaw whose absence detracts significantly from our understanding of the US economy at a time when its growing inequalities of income, wealth, and power threaten its social and political well-being as nothing has since the Great Depression. There are explanations for this malaise that, on the face of it, have little or nothing to do with CBSs and the production side of IT. Among them are the displacement of much US manufacturing to the developing world; the shift of political power in favor of business, leveraged by business to skew the distribution of income and wealth

in its interest; and the deterioration in US education at all levels that leaves a growing percentage of the labor force without the skills to hold down well-paying jobs in the “knowledge economy” or to compete with the tens of millions entering the global labor force, especially in East Asia.

But the “IT question” as defined here can both challenge and amplify these explanations. Can, for example, the overseas sourcing of manufacturing really be an adequate explanation for the US economic malaise when more than 80 percent of the US labor force is now employed in service industries, which for the most part are not in direct competition with the developing world and where the impact of white-collar industrialization has been especially severe? Then, turning to the US workplace itself, would the top management of US corporations have been so successful in skewing the distribution of corporate profits in their own favor if the workforce really had been empowered by information technology as “knowledge workers” in a “knowledge economy,” as management gurus such as Peter Drucker confidently predicted twenty years ago?¹⁰ And is improved education at the high school, vocational, or even college level really the golden key to a world of high-paying, secure employment if in fact Computer Business Systems are being used to marginalize employee knowledge and experience and where employee autonomy is under siege from ever more intrusive forms of monitoring and control?

The emerging relationship between technology and work in the US economy of the late twentieth and early twenty-first centuries suggests that the corporate sector is relying on information technology *both* to simplify and accelerate the processes of business output, and so increase the output of labor, *and* to deskill labor, diminish its role, and so weaken its earning power. The widening gap between

the growth of labor’s output and its real earnings is the desired outcome of this regime. When the output of labor rises and its real earnings stagnate or decline, then, other things being equal, the cost of labor per unit of output will fall and profits will rise.

From a corporate perspective, this is a good outcome, and especially with the compensation of top management so frequently linked to the corporate stock price, which will tend to rise with profits. But there is an identity and equivalence of basic economics that this project overlooks. Producers are also consumers, and by denying employee-producers the rewards of their increased productivity, the architects of the wages-productivity gap have also laid siege to the consumers’ republic and so undermined the US economy’s single most powerful engine of demand and growth. Consumers had been relying on debt to keep their consumption afloat in the face of stagnant real earnings, but this remedy, like the housing bubble itself, could not endure and indeed ended with the financial crisis of 2007–2008.

In explaining why the recovery has been so weak and why it is having to keep interest rates so low and for so long, the Federal Reserve has placed a heavy emphasis on the poor financial condition of consumers and their inability to relaunch the economy with their spending, constrained by high unemployment, zero income growth, lower housing wealth, and tight credit.¹¹ What the Fed does not acknowledge is that the eclipse of consumers is simply the reverse side of their eclipse as producers and that this has taken place as part of an economy-wide business plan.

INSIDE THE BELLY OF THE BEAST

IN THIS CHAPTER WE WILL RELY ON THE CBS PRODUCT MANUALS to travel as far as we can into their esoteric world. The obscurity of CBSs, their complexity, and their visual poverty elevate the importance of these manuals as sources about what they are and how they work. Trying to understand the systems without these texts is like trying to climb a Himalayan peak without a guide. In an age of managerial hegemony, it might be thought difficult to find a substantial bibliography of such primary sources concerned with one very significant aspect of CBSs—what its like to be at their receiving end as employees. But a copious bibliography of such sources does exist, and it comes not from labor unions, progressive think tanks, and least of all from the bowdlerized texts of management gurus such as Michael Hammer and James Champey of reengineering fame. It comes from the texts of the IT corporations that make and market the systems themselves.

Foremost among these are IBM, Oracle, and the German corporation SAP, as well as Scheer AG of Saarbrücken, Germany, a

mittelstand software company that has had a strong and enduring influence on SAP, the world leader by market share for CBSs. Their product manuals between them illuminate with engineering thoroughness whole continents of the CBS world uncharted by the management gurus.¹ Running to five-hundred-plus pages in the case of IBM's Red Books, they are texts written by engineers for engineers, and, as so often happens when technicians turn inward and address one another in their trade literature, they say things about their products that they would not say when facing outward and addressing a wider audience.

The texts rely heavily on an abstract, quasi-scientific language that is a strong deterrent to anyone from beyond the specialist CBS communities wanting to read them. The documents speak of business events and occurrences, critical business situations, process instances and flows, process improvement metrics, and event-driven process chains (EPCs). The CBS engineers use this disembodied language in part because their products are designed for use throughout the economy, and so the language of explanation must be abstract and general. To use a language identified with any one particular segment of the economy, such as manufacturing, would be to imply that there were other segments such as financial services or health care where the systems could not be used.

Behind this *langue de bois* of digital managerialism lurks something truly transformative. The objects of management are no longer flesh-and-blood humans but their electronic representations. We have become the numbers, coded words, cones, squares, and triangles that represent us on digital screens. The human-contact side of management—the tasks of explanation, persuasion, and justification—fades away as workplace rules and procedures become texts showing up on employees' computer screens, with the whole

apparatus of monitoring and control instantly recalibrated to accommodate the new metrics.

With the latest generation of CBSs, this control regime has reached far beyond the systems' original base in manufacturing to include virtually the entire service economy, so not only service sectors that are low skilled and labor intensive such as the retail economy with Amazon and Walmart to the fore but also sectors that are skill intensive and the preserve of professionals, such as hospitals and clinics, university lecture and seminar rooms, the offices of banks, insurance companies, government departments, and the laboratories of human resource management.

Early in its main product manual for its Websphere Business Monitor V6.1, IBM stakes out its claim to these professional, white-collar workplaces. The manual describes how its control technologies empower "financial institutions to track and manage loans processes in real time," enable a "government agency to gain visibility into the operations of a social service agency," and equip managers in health care "to gain an overview of all operations within a hospital, including the management of insurance claims processing, scheduling of testing, equipment needs, and staff assignments."²

SAP and Oracle make similar claims, and all three corporations have brought out a host of research documents and "executive briefs" showing how their monitoring and control systems apply to all the principal sectors of the manufacturing and service economies. SAP, for example, has "industry overviews" for higher education, retail, customer relations management, marketing, semiconductors, utilities, manufacturing, banking, and human resource management.³ CBSs are, then, universal technologies, straddling the boundaries between the public and the private sectors, between manufacturing

and services, and between managers, professionals, and front-line workers.

IBM gives a vivid sense of the sheer density of control embedded within its systems. It lists the eight mutually reinforcing "views" of the workplace that managers empowered with its systems can acquire.⁴ There is a "scorecard view" that groups together *Key Performance Indicators* (KPIs), such as the sales and profit data for corporate divisions; then "a KPI view" that singles out a particular indicator from this grouping and looks at its performance in greater detail, as at the University of Texas, where the number and value of fee-paying students a professor has attracted to his or her class are monitored and measured.⁵ Also a "gauge view" that shows KPIs as "visually emulating the appearance of instruments, like the speedometer in an automobile."

Then a "monitoring view" that shows how well a particular process is being performed in real time and against target; then a "report view" that creates written reports on process performance "relative to a time axis"; then a "dimensional" view that "provides granular details about how especially critical elements of a process are being performed," such as the signing of new clients and the sale of newly introduced products; then an "alert view" that tracks the performance of processes that show signs of going wrong and missing their targets; and finally a "process view" that displays "graphical cues about a user's process statistics."

The key to an understanding of these CBS control systems, and indeed of white-collar industrialism itself, lies buried in the eighth and perhaps most obscure of these "views," the view that displays "graphical cues about a user's process statistics." This eighth view consists of graphical, electronic representations of processes as "an event-driven process chain" in which the mostly computer workstations constituting

the process are represented as squares, triangles, or oblongs on the screen, linked to one another in a virtual chain, and so displaying the life cycle of the process from beginning to end. As a symbolic, electronic representation of events in the real world, there is no difference between an electronic "event-process chain" representing a process in manufacturing, such as the movement of a car body along the auto assembly line, and a process chain in the service economy representing the movement of a patient through a hospital or clinic.

Although these electronic chains are potent symbols of the wholesale transfer of industrial methods from the manufacturing to the service economy, there are critical differences between how processes are managed in the two spheres. Counterintuitively, the burden of monitoring and control is much greater in the white-collar economy than that of the blue-collar. Taking the automobile assembly line as the archetypal manufacturing process, the discipline of the line is enforced in the first instance by the repetitive simplicity of the work procedures performed on the line, all meticulously calibrated and timed in advance according to the principles of *Scientific Management*.

This control regime applies irrespective of whether the worker performs a single unvarying routine, as in the early Ford plants, or a routine that varies at the margin, as in Japanese systems of "lean production" now universally adopted in the US auto industry. The moving line itself is also a powerful, all-seeing monitor, because the failure of a worker to perform his assigned task within the designated time immediately shows up in the form of a defective, incomplete workpiece moving on to the next worker on the line.

However, once we move from the blue- to the white-collar line, the iron disciplines of manufacturing fade away, and the human dimension, with all its potential for error and indiscipline, looms

larger, and so does the need for a panoptic monitoring regime to pick up on this human waywardness and correct it without delay. Although the electronic “event-process chains” for both the white and the blue lines look the same on management’s control “dashboards,” the reality each depicts is different. On the white-collar line, the events that populate the process chain are not simply physical movements subject to the full disciplines of Scientific Management.

With the “process events” of customer relations management, human resource management, financial services, and public administration, there is still a place for human judgment and so for human error, along with the human capacity to derail a process and keep it from achieving management’s target for its KPIs. With these white-collar processes, there is no physical, mechanical line to ensure that the process events are performed by the right people, in the right order, and in the right amount of time. When the workstations along the line are computers manned by humans, the operator may send the information “workpiece” to the wrong computer, or, if the work divides into subtasks performed on a single computer, the operator may not execute the tasks in the right order and within the designated time frame.

There may even be rogue, unauthorized process “loops” created by employees, so, for example, a “human resource” operative may hire an employee while missing out on steps mandated by the system such as the requirement to “install [the employee] in a learning environment” or “install by special trainer,”⁶ or a physician may prescribe a treatment not authorized by an HMO’s treatment rule book. These omissions will show up on the electronic process tree, depicting that particular process instance, with the system flagging the process “loops” unauthorized by management.

Although the burden of monitoring and control embedded in

the systems is designed to deal with this human indiscipline, the dominant image of the human that emerges in the texts is the one that the engineers would *like* to be dealing with and so one in which we humans are set alongside the inanimate components of process as abstracted entities fully subject to the manipulation and control of the corporate “process assemblers.” These are the engineers who take senior management’s preferences for what a process should look like and then come up with the fully elaborated process model. An IBM executive brief for its *Business Activity Monitoring (BAM)* software classifies these human and nonhuman components of process as both equally subject to the experimental modeling of the “process assemblers”: “When your business analyst is satisfied with the process model, a process assembler can use the graphical tools to pull the services needed from a palette into the process map. The assembler can also drag and drop relationships among data, people, systems and services. The measurement points can be identified and marked.”⁷

It is here perhaps that IBM gets us closest to a digital version of Aldous Huxley’s *Brave New World* and where, whether we are physicians, fast food workers, middle managers, or Walmart associates, we have become disembodied objects of speed and efficiency joined to these electronic symbols on the screen—symbols that the “process assemblers” then move around as they see fit and with the real, corporeal us having to follow orders like members of a digital chain gang, pushed first one way and then another by our virtual overseers. At the same time, IBM also claims that the system helps managers “perform corrective action based on real time information” when this needs to be done. Corrective actions include “transferring work items” away from workers who may not be meeting their targets and “suspending or terminating the process altogether”

so that an investigation of employee error can be undertaken without delay.⁸

Scheer AG of Saarbrücken also pitches its monitoring software for its power to “evaluate various behaviour patterns” and to test whether “secondary paths on the event tree” traversed less frequently by the human agents are “disruptive and should be eliminated.”⁹ Scheer also draws attention to a new source of disruption—e-mails, chat rooms, discussion forums, blackboards, instance messages, and Web conferences, insisting that the undisciplined use of all these tools has to be replaced with their “order creation in the value creation chain.”¹⁰ In the product manual for its Domino Administrator 8, IBM gives a vivid sense of how this “ordered creation” of e-mail use can be achieved. The document has separate sections on topics titled “Tools for Mail Monitoring,” “Creating a Mail-Routing Event Generator,” “Tracking a Mail Message,” “Generating a Mail Usage Report,” “Viewing Mail Usage Reports,” and “Controlling the Mail Tracking Collector.”¹¹

The development of such hyperelaborate systems of control testifies to the power of CBS technologies to extend their domain to virtually every human activity performed in the workplace. It also testifies to the temptation, hard to resist, for executives to avail themselves of such powers even if the activities in question may be ill suited to be objects of control. Businesses may need to find ways of picking up on rogue employees who abuse their use of e-mail, but to do so by setting up a panoptic 24/7 system that monitors the entire workforce all the time fosters a culture of mistrust that can only be reciprocated by those who are its objects, and stifles the use of e-mail as a creative outlet for employees otherwise at the mercy of their KPIs.

MEASURES TO CORRECT the unauthorized, the disruptive, and the dysfunctional are the end products of elaborate systems of monitoring and control that invite further exploration of how they work. Again it is the event-driven process chain that is the essential entry point. The most illuminating account of EPCs as control mechanisms is to be found in Scheer AG’s volume *Corporate Performance Management*, edited by August-Wilhelm Scheer himself.¹² The account of EPCs in IBM and SAP texts is similar, though less detailed and systematic.

Scheer’s monitoring system pivots on the representation of an ideal EPC embedded in the system’s memory, the “ideal” being a process archetype that exemplifies exactly how management wants the process to be performed, whether it be the hiring of an employee, the treatment of a patient in a clinic, the packaging of a mortgage, or the assembly of a computer on the line. These archetypal EPCs straddle the frontier between manufacturing and services. They lay down the pathways that the work item, whether physical or virtual, must follow as it wends its ways between the process workstations, the time to be taken for each stage of the process, and the quantitative values for the KPIs that management may attach to the process.

There is no limit to the number of KPIs that management can attach to a process. In the product manual for its *Business Process Management* system, IBM lists thirty-three possible KPIs for a product sales department, including profit margin per transaction, profit per customer, customer average days to pay, contribution to profit by product, and percentage of deliveries on time. Managers may also attach KPIs to a process without the concerned employees knowing about it. IBM’s research Red Book for its Websphere Business Monitor V1 describes how a “dashboard KPI” can be created

for a manager's "personal use" and is not visible to "other people in the organization."¹³

The core activity of monitoring is an automated comparison between the values of the ideal process instance embedded in the system's memory and the values of the actual performance of employees in the present or the recent past. So, for example, one might compare the time allowed for the processing and final approval of a mortgage application by loan officers set alongside the times actually taken by them. If the comparison is with past process instances, the system can create a composite event tree of these past instances, which will show the average of its KPIs and so also provide evidence that there may be a systemic flaw in how the processes have been executed. Managers can also peer into their subordinates' screens without their knowing it and see how the process is being executed in real "run time." IBM boasts that its monitoring software "enables you to monitor the run-time behaviour of business processes through a web application deployed on IBM WebSphere Process Server, Version 6."¹⁴

The goal of this monitoring is to find cases where the KPI values attached to real-world "process instances" do not conform to those embedded in the "ideal" process. But the discovery of this malfunction is only the first stage of a three-stage procedure that has to be performed in full if the malfunction is to be properly dealt with. The second stage is the discovery of the causes of error, and the third is the prescription of a cure. The search for causes brings into play a central feature of CBSs, which is their capacity to "*drill down*" to find the causes of dysfunction. Here the manager shifts the electronic images of process instances on his dashboard, each with their own electronic process chain, to find the culprit or culprits.

If the culprit is a single employee, the manager's drill down may

end with an examination of the single process instance for which the employee has been responsible. If she has taken too long to perform a "business event," such as the processing of a mortgage application, it may be because she has included procedures not authorized by the rules, and the electronic image of the process instance will show it. If the culprit is a work team or whole department, it may be necessary to create a composite process chain to find exactly where the weak link in the process is to be found. In the CBS product manuals, there is an unrelenting emphasis on the need for speed in the execution of processes and for speed in the detection and correction of process error. In the words of the Gartner Corporation, the leading specialist consultant of the CBS world: "Emerging business activity monitoring and real-time enterprise strategies take the goal of timeliness to its logical conclusion; their aim is instantaneous awareness and appropriate response to events across an entire virtual enterprise."¹⁵

This preoccupation with speed is simply the transfer to a service-dominated economy of a practice deeply rooted in manufacturing. But while the saving of minutes or seconds on the assembly lines can contribute directly to improved efficiency, there is no such automatic payoff in health care or financial services, where an insistence on speed is just as likely to yield inefficiency in the form of hasty, ill-considered judgments made by professionals harassed by the clock. The logical outcome of this search for speed is the automation of all three monitoring phases, including the prescriptive phase. In the words of Rob Ashe, now general manager of IBM's Business Intelligence and Performance Management Unit: "Any system you want to be fast and pervasive must be automated."¹⁶

The primary sources reveal that Corporate Panoptics as the monitoring and control of business processes, and Business

Processes Reengineering as their restructuring, have ceased to be distinct activities and are now fused as a continuous activity. In the original reengineering textbooks, the practice comes over as a variant of traditional engineering, where experts descended on the white-collar line, disassembled and reassembled it as if it were made up of real physical objects, and then handed back the improved model to the routine line managers. Now the two management processes have become a single integrated activity in which the inefficiencies revealed by constant monitoring become the raw material for the equally constant activity of reshaping the processes to make them run faster and more efficiently. Although the working lives of employees are deeply affected by this constant change, they have no more say in how it takes place than the hardware and software systems that stand between them and their superiors.

The fusion of Corporate Panoptics and Business Process Reengineering is a leading theme of the primary sources and claimed as a major technological breakthrough for CBSs in the early twenty-first century. So IBM's *Business Dashboard for Managers* first compares "comprehensive actual metrics to established performance measures." The results can then be immediately "fed back into process modelling tools for further analysis and to complete the cycle of continuous process improvement."¹⁷ In Scheer AG's texts, the fusion is described with characteristic detail and thoroughness: "The graphic visualization of actual processes is a patented method for identifying patterns in the execution of processes and pinpointing optimization potential; . . . the running processes are subject to constant improvement through automated measurement and analysis."¹⁸ Again, the human element is completely absent in this perfecting of process.

Managers too are diminished by the coming of Corporate Panoptics. With the monitoring, analysis, and reshaping of business processes increasingly automated, the role of middle and lower managers becomes one of gazing at control screens, like shift workers in a highly automated steel mill, and waiting for something unusual to happen. Moreover, their own management performance is as much subject to monitoring as their front-line subordinates, and equally visible to their management superiors. Distinctions between the managers and the managed become increasingly difficult to draw.

Although the heavy automation of new-generation CBSs suggests the workings of artificial intelligence (AI), this is misleading. Every one of the proliferating inventory of rules that govern the work regimes of CBSs is the result of decisions made by senior executives and then embedded in the system by the process assemblers, whether it be the structure of the event-process tree, the timings linking the workstations on the tree, the KPIs attached to the process, or, in the unceasing dialectic between Process Reengineering and Corporate Panoptics, the rules used to assess which process improvements should be authorized and which should not. The reverse side of the empowerment of experts is the complete disempowerment of nonexperts.

In this dialectic, and in the equally constant shaping and reshaping of processes that follow, the nonexperts, whether lower managers or front-line workers, have little or no role to play. They are present on the expert's management dashboards as electronic symbols, not as living entities, and because they are tethered to the symbols, whenever the symbols are "dropped or dragged" onto the dashboard, so are they. They are as much objects of the system as those FedEx packages at a depot shunted onto different conveyer belts according to the codes on their labels.

In the old factory economy, the work routines of mass production applied to the physical movements of workers on the line. But in the contemporary service economy, dominated by CBSs, the targets that matter most are the judgments, human interactions, and even the speech of employees, and the agents of control are these networked computers empowered with workflow and monitoring software, with expert systems attached. Moreover, because employees in such fields as health care, financial services, customer relations, and human resource management are dealing with their fellow humans in all their complexity and contrariness, the rules of the system must proliferate and mutate as they try to cope with the myriad contingencies that can arise in these encounters.

Once these networks are up and running, every aspect of work—the timing of tasks, the sequence in which they are performed, the operation of expert systems—becomes subject to rules that can be altered, elaborated, and enforced at the touch of a managerial keystroke. This applies as much to the work of physicians, middle managers, and the operatives of the Wall Street mortgage machine as it does to the work of Walmart “associates” and call-center agents. What we are witnessing is the emergence of a new white-collar working class, subject to all the regimentation and discipline of its factory predecessor, but lacking the latter’s solidarity, its willingness to organize and to fight its cause in the workplace.

2

WALMART AND AMAZON

THESE PRIMARY SOURCES DESCRIBE A SURREAL WORLD OF DIGITAL control in which the human element is in eclipse as just another factor of production. There is a need now to *drill down* and to restore the human by looking at how the systems work in the context of specific industries and workplaces. The wholesale and retail industries are good places to start because both are highly labor intensive and because it is also there that CBSs have achieved some of their most spectacular results, with Walmart leading the way. In its analysis of the growth of US labor productivity between 1995 and 2000—the years of the “new economy” and of the high-tech bubble on Wall Street—the McKinsey Global Institute found that just over half that growth took place in two sectors, wholesale and retail, where Walmart “caused the bulk of the productivity acceleration through ongoing managerial innovation that increased competition intensity and drove the diffusion of best practice.”¹

In the category of “general merchandise,” the rise of Walmart took the form of a huge lead in productivity over its competitors,

of 44 percent in 1987, 48 percent in 1995, and still 41 percent in 1999, even as competitors began to copy Walmart's methods. In its research McKinsey makes much of Walmart's innovative use of information technology: its early use of computers and scanners to track and replenish inventory; its use of satellite communications to link corporate headquarters in Bentonville, Arkansas, with the nationwide network of Walmart stores; and the labeling of goods with chips, sensors, and Wi-Fi tags to monitor and speed up the movement of goods from factory to warehouse to store.² But these technologies are also used to monitor and time the work of employees shifting the goods. In her study *The Quality of Work at WalMart*, Ellen Rosen of the Women's Studies Research Center at Brandeis University describes an especially egregious Walmart work practice that relies on this rigorous monitoring to squeeze the labor budget and keep Walmart wages low.³

Each year Walmart provides its store managers with a "preferred budget" for employment, designed to allow managers to staff their stores at adequate levels. But the actual budget imposed on the store managers always falls short of the preferred budget, so that most Walmart stores are permanently understaffed. One store manager explained to Rosen the practical consequences of this: "With the meagre staff he was allowed, it had always been a struggle to keep shelves stocked and the floors shiny, or to get hourly workers to help customers." With each employee having so much work to do, managers assumed that whenever they saw an employee not working, she must be shirking her duties, or "stealing time" from the corporation, a punishable offense.

When the writer Barbara Ehrenreich worked at a Minneapolis Walmart as part of the research for her book on low-wage work, *Nickel and Dimed*, she was told by her boss that "time theft" in the

form of associates standing around and talking to one another was his "pet peeve." Later a fellow worker warned Ehrenreich that they could talk only about their work and that anything else counted as "time theft" and was forbidden. Ehrenreich soon found that her boss and his fellow management spies were a constant presence on the shop floor, looking out for time thieves.⁴

Rosen's and Ehrenreich's accounts of the workplace regime at Walmart date from the early 2000's, and since then a burdensome workplace regime for employees has grown even more so as the corporation has tried to compensate for stagnating store sales by cutting costs. This cost cutting has entailed reductions in an already overstretched shop-floor workforce, along with attempts to compensate for these reductions with control technologies that rely on factory disciplines to extract higher output from the remaining workforce. Foremost among these technologies is "Task Manager," a targeting and monitoring system that Walmart began to introduce in its stores from 2010 onward. The system tells employees what to do, how long they have to do it, and whether they have met their target times. Employees sign on to the system by swiping their identity cards on a terminal, as with a credit card, and the system then spits out its instructions.⁵

In a research paper on Walmart's "Productivity Loop," John Marshall of the Capital Stewardships Program of the Union of Food and Commercial Workers (UFCW) found that Task Manager is "an object of scorn among thousands of Walmart associates" who complain that "there is never enough time to complete all the tasks." He cites the case of Maggie, an overnight stocker who had worked in the shoe department of a Walmart store in Southern California for four years: "The Task Manager says you can stock the shoe department in 15 minutes. That's six boxes with 12 pairs of shoes in each

box—equals 12.5 seconds per pair of shoes. I'm good at what I do, I know my department very well, but I simply cannot get the work done in the time the systems says." Her colleague Toby, an unloader in the shoe department, added that the system required him to unload one case of shoes per minute; "this is physically impossible."⁶

With Task Manager the process regime at Walmart has begun to fray at the edges, and this deterioration has been noted by stock analysts and the trade press. In February 2011 *Retailing Today* carried a photograph of a Walmart supercenter whose largely empty shelves were reminiscent of the way supermarkets used to look in East Berlin before the Wall came down: virtually empty and this because employees had not had the time to stock the shelves. *Retailing Today* asked: "How could a retailer who so often talks about leveraging its supply chain to deliver upon all sorts of strategic initiatives allow an out of stock situation of such extreme proportions to happen?"⁷

Retailing Today has noted other symptoms of system failure: "unmanned checkout register episodes at multiple Walmarts . . . customers entering a Walmart superstore [who] could find no available shopping carts—since no employees were available to retrieve empty carts from the parking lot." At Walmart's annual shareholders meeting in June 2011, David Strasser of the Philadelphia brokers Janney Montgomery Scott asked Walmart's CEO for the United States, Bill Simon, "Are you still comfortable that you're not taking out too many hours around the register and causing more lines and ultimately losing sales?" Simon acknowledged he was not "comfortable" with the way things were going but, honoring an old Walmart tradition, blamed the store managers: "Some of them try to make their profit number the wrong way. And that's in some of the cases driving some of the action that some people have seen."⁸

One predictable outcome of Walmart's workforce overload has

been an increase in the number of employees who fail to meet the target timings mandated by Task Manager and are then punished. With such a rigged time and motion regime, even the most productive employees can fall short, and when they do Walmart management is ready with an elaborate system of penalties. There are written reprimands in the form of Walmart's own "pink slips"; spoken reprimands in the form of "coachings"; then "decision-making days," or d-days, when an employee must explain why he or she should not be fired; and then finally dismissal itself. The collective impact of these penalties is to keep employees off balance and to undermine their bargaining position when they ask for a pay rise. A former assistant store manager at Walmart reports that with the coming of Task Manager, there had been "a big increase in coachings and in more terminations."⁹

The one-sided politics of the Walmart shop floor are reinforced by a weak code of federal labor laws weakly enforced, and which Walmart has frequently violated in order to push up labor productivity while keeping labor costs down. A chronicle of these violations is to be found in the details of payments Walmart has had to make in penalties to government—federal and local—and awards to plaintiffs in civil suits. Walmart's violations include dismissal of employees for prounion organizing, enforcement of overtime work without pay, denial of paid lunch breaks, and the hiring of illegal immigrants who, once hired, have been confined overnight in Walmart stores. In December 2008 Walmart settled sixty wage class-action suits for \$640 million and since then another seven class suits for another \$345 million, for a grand total of just under \$1 billion.¹⁰

Walmart has always been a ferociously antiunion company, and the UFCW has yet to organize a Walmart store. Every manager at Walmart is issued with a "Manager's Toolbox to Remaining Union

Free,” which warns managers to be on the lookout for signs of union activity, such as “frequent meetings at associates’ homes” or “associates who are never seen together . . . talking or associating with one another.”¹¹ The Toolbox provides a special hotline so that managers can get in touch with Walmart’s Bentonville headquarters the moment they think employees may be planning to organize a union. A high-powered union-busting team will then be dispatched by corporate jet to the offending store, to be followed by days of compulsory antiunion meetings for all employees.

But not everything has been going management’s way in its perpetual conflict with its own workforce. In 2011 OUR Walmart came into existence, with OUR standing for “Organization United for Respect at WalMart.” Although strongly supported by the UFCW, OUR Walmart is not a union and is not legally empowered to negotiate with the company on wages and working conditions. It is an association that any Walmart employee can join for a monthly payment of five dollars. Yet under US labor law it has the right to organize walkouts as de facto strikes, and Walmart is prohibited by law from retaliating against the organizers of these actions, although there is strong anecdotal evidence that it does retaliate. The first such strike took place in October 2012 at a Walmart supercenter at Pico Rivera, California, followed in September 2013 by walkouts and protest rallies at Walmart stores in ten US cities, including New York, Chicago, Boston, and Washington, DC.¹²

The willingness of Walmart employees to take what for them is the risky step of joining OUR Walmart and participating in strikes and protest rallies is a warning to Walmart management that there is a limit to how far it can push its workforce without provoking a strong backlash. The results of independent polling carried out in May and June 2011 by Lake Research Partners suggests that Walmart

may be getting close to this danger zone. Eighty-four percent of those polled said that they would take a better job if they could find one, three-quarters said that understaffing had undermined customer service, and half said they were living from paycheck to paycheck. The OUR Walmart strikes and rallies also provide a rallying point for civic and political leaders opposing Walmart’s further expansion in their communities. The 2012 strike in Southern California had the support of Charles Calderon, majority leader of the California Assembly, and the Reverend Eric Lee, president of the Los Angeles chapter of the Southern Christian Leadership Conference.¹³

The Walmart case provides a spectacular firm-level example of the role of information technology in driving the wages-productivity gap. On the production side, IT supports a global system of logistics that coordinates very efficiently the movements of tens of millions of goods from factories to warehouses and to stores; on the labor side, it promulgates rules that govern the movement and actions of more than a million employees, incorporating the monitoring systems that ensure these actions are performed according to the rules and within the designated time frames. This duality has enabled Walmart to achieve among the highest rates of productivity growth for the entire service economy, while keeping the wages of its “associates” at or barely above the poverty level and while also relying on the taxpayer to keep the children of Walmart employees out of poverty. It is true that this harsh workplace regime yields a payoff in the form of lower prices for Walmart’s consumers. But should such convenience for the consumer be purchased with the lost dignity and lost earnings of the Walmart workforce?

WHEN I FIRST did research on Walmart’s workplace practices in the early 2000s, I came away convinced that Walmart was the most

egregiously ruthless corporation in America. However, ten years later, there is a strong challenger for this dubious distinction—Amazon Corporation. Within the corporate world, Amazon now ranks with Apple as among the United States' most esteemed businesses. Jeff Bezos, Amazon's founder and CEO, came in second in the *Harvard Business Review's* 2012 world rankings of admired CEOs, and Amazon was third in CNN's 2012 list of the world's most admired companies.¹⁴ Amazon is now a leading global seller not only of books but also of music and movie DVDs, video games, gift cards, cell phones, and magazine subscriptions. Like Walmart itself, Amazon combines state-of-the-art CBSs with human resource practices reminiscent of the nineteenth and early twentieth centuries.

Amazon equals Walmart in the use of monitoring technologies to track the minute-by-minute movements and performance of employees and in settings that go beyond the assembly line to include their movement between loading and unloading docks, between packing and unpacking stations, and to and from the miles of shelving at what Amazon calls its "fulfillment centers"—gigantic warehouses where goods ordered by Amazon's online customers are sent by manufacturers and wholesalers, there to be shelved, packaged, and sent out again to the Amazon customer.

Amazon's shop-floor processes are an extreme variant of Taylorism that Frederick Winslow Taylor himself, a near century after his death, would have no trouble recognizing. With this twenty-first-century Taylorism, management experts, *scientific managers*, take the basic workplace tasks at Amazon, such as the movement, shelving, and packaging of goods, and break down these tasks into their subtasks, usually measured in seconds; then rely on time and motion studies to find the fastest way to perform each subtask; and

then reassemble the subtasks and make this "one best way" the process that employees must follow.

Amazon is also a truly global corporation in a way that Walmart has never been, and this globalism provides insights into how Amazon responds to workplaces beyond the United States that can follow different rules. In the past three years, the harsh side of Amazon has come to light in the United Kingdom and Germany as well as the United States, and Amazon's contrasting conduct in America and Britain, on one side, and in Germany, on the other, reveals how the political economy of Germany is employee friendly in a way that those of the other two countries no longer are.

Amazon, like General Electric and Walmart, prides itself as a self-consciously ideological corporation, with Jeff Bezos and his senior executives proclaiming an "Amazon Way" that can illuminate the path forward for less innovative businesses. In December 2009 Mark Onetto, chief of operations and customer relations at Amazon and a close collaborator of Bezos, gave an hourlong lecture on the Amazon Way to master's of business administration students at the University of Virginia's Darden School of Business.¹⁵ Onetto is a disconcerting figure, because once he starts talking, style and substance are in sharp contrast. He is French born, and he still speaks with the rather faded insouciance of Maurice Chevalier and "Gay Paree," and he makes much of this in his lecture. But there was nothing gay (in the traditional sense) or insouciant about the Amazon workplace that Onetto described for UVA's MBA candidates.

Like most such corporate mission statements, Onetto's uses a coded language that hides the harshness of his underlying message, which needs translation along with a hefty reality check. As with Walmart so at Amazon, there is a quasi-religious cult of the customer as an object of "trust" and "care"; Amazon "cares about the

customer,” and “everything is driven” for him or her. Early in the lecture, Onetto quotes Bezos himself as saying, “I am not selling stuff. I am facilitating for my customers to buy what they need.”¹⁶

Amazon’s larding of its customer cult with the moral language of “care” and “trust” comes with a strong dose of humbug because Amazon’s customers are principally valued by the corporation as mainstays of the bottom line, and not as vehicles for the fulfillment of personal relationships. There is still more humbug in the air because Amazon treats a second significant grouping of men and women with whom it has dealings—its employees—with the very opposite of care and trust. Amazon’s employees are almost completely absent from Onetto’s lecture, and they make their one major appearance when they too are wheeled in as devotees of the cult of the customer: “We make sure that every associate at Amazon is really a customercentric person, that cares about the customer.”¹⁷

But as so often in Amazon’s recent history, it has been in Germany that this humbug has been stripped away and the true role of the “cult of the customer” has become clear. In its US and UK fulfillment centers, Amazon management is hegemonic. There is no independent employee voice to contest management’s demands for increased output unmatched by increases in real wages. But in Germany Amazon has to deal with work councils (*Betriebsrat*); a powerful union, the United Services Union (Vereinte Dienstleistungsgewerkschaft, or Ver.Di), with 2.2 million members; and high officials of the federal and state governments more closely aligned with labor than their counterparts in the United States and the United Kingdom.

When in December 2012 the Ver.Di representatives in Leipzig called on the management of Amazon’s local center to open negotiations on wage rates and an improvement of working conditions, and

especially for temporary workers who are badly exploited at Amazon, management refused on the grounds that employees should be “thinking about their customers” and not about their own selfish interests.¹⁸ This was treated with derision on the union side, but at all Amazon’s centers, and especially those in the United States and the United Kingdom, the cult of the customer is a serious matter and provides the rationale for the extreme variant of scientific management whose purpose, as at Walmart, is to keep pushing up employee productivity while keeping hourly wages at or near poverty levels.

As at Walmart, Amazon achieves this with a regime of workplace pressure, in which targets for the unpacking, movement, and repackaging of goods are relentlessly increased to levels where employees have to struggle to meet their targets and where older and less dextrous employees will begin to fail. As at Walmart, there is a pervasive “three strikes and you’re out” culture, and when these marginal employees acquire too many demerits (“points”), they are fired.

Amazon’s system of employee monitoring is the most oppressive I have ever come across and combines state-of-the-art surveillance technology with the system of “functional foreman,” introduced by Taylor in the workshops of the Pennsylvania machine-tool industry in the 1890s. In a fine piece of investigative reporting for the London *Financial Times*, economics correspondent Sarah O’Connor describes how, at Amazon’s center at Rugeley, England, Amazon tags its employees with personal sat-nav (satellite navigation) computers that tell them the route they must travel to shelve consignments of goods, but also set target times for their warehouse journeys and then measure whether targets are met.¹⁹

All this information is available to management in real time, and if an employee is behind schedule she will receive a text message

pointing this out and telling her to reach her targets or suffer the consequences. At Amazon's depot in Allentown, Pennsylvania (of which more later), Kate Salasky worked shifts of up to eleven hours a day, mostly spent walking the length and breadth of the warehouse. In March 2011 she received a warning message from her manager, saying that she had been found unproductive during several *minutes* of her shift, and she was eventually fired.²⁰ This employee tagging is now in operation at Amazon centers worldwide.

Whereas some Amazon employees are in constant motion across the floors of its enormous centers—the biggest, in Arizona, is the size of twenty-eight football fields—others work on assembly lines packing goods for shipping. An anonymous German student who worked as a temporary packer at Amazon's depot in Augsburg, southern Germany, has given a revealing account of work on the line at Amazon. Her account appeared in the daily *Frankfurter Allgemeine Zeitung*, the stern upholder of German financial orthodoxy and not a publication usually given to accounts of workplace abuse by large and powerful corporations.²¹ There were six packing lines at Amazon's Augsburg center, each with two conveyor belts feeding tables where the packers stood and did the packing. The first conveyor belt fed the table with goods stored in boxes, and the second carried the goods away in sealed packages ready for distribution by UPS, FedEx, and their German counterparts.

Machines measured whether the packers were meeting their targets for output per hour and whether the finished packages met their targets for weight and so had been packed "the one best way." But alongside these digital controls there was a team of Taylor's "functional foremen," overseers in the full nineteenth-century sense of the term, watching the employees every second to ensure that there was no "time theft," in the language of Walmart. On the packing lines

there were six such foremen, one known in Amazonspeak as a "co-worker" and above him five "leads," whose collective task was to make sure that the line kept moving. Workers would be reprimanded for speaking to one another or for pausing to catch their breath (*Verschnaudfpause*) after an especially tough packing job.²²

The functional foreman would record how often the packers went to the bathroom and, if they had not gone to the bathroom nearest the line, why not. The student packer also noticed how, in the manner of Jeremy Bentham's nineteenth-century panopticon, the architecture of the depot was geared to make surveillance easier, with a bridge positioned at the end of the workstation where an overseer could stand and look down on his wards.²³ However, the task of the depot managers and supervisors was not simply to fight time theft and keep the line moving but also to find ways of making it move still faster. Sometimes this was done using the classic methods of Scientific Management, but at other times higher targets for output were simply proclaimed by management, in the manner of the Soviet workplace during the Stalin era.

Onetto in his lecture describes in detail how Amazon's present-day scientific managers go about achieving speedup. They observe the line, create a detailed "process map" of its workings, and then return to the line to look for evidence of waste, or *Muda*, in the language of the Toyota system. They then draw up a new process map, along with a new and faster "time and motion" regime for the employees. Amazon even brings in veterans of lean production from Toyota itself, whom Onetto describes with some relish as "insultants," not consultants: "They are really not nice. . . . [T]hey're samurais, the real last samurais, the guys from the Toyota plants."²⁴ But as often as not, higher output targets are declared by Amazon management without explanation or warning, and employees who

cannot make the cut are fired. At Amazon's Allentown depot, Mark Zweifel, twenty-two, worked on the receiving line, "unloading inventory boxes, scanning bar codes and loading products into totes." After working six months at Amazon, he was told, without warning or explanation, that his target rates for packages had doubled from 250 units per hour to 500.²⁵

Zweifel was able to make the pace, but he saw older workers who could not and were "getting written up a lot" and most of whom were fired. A temporary employee at the same warehouse, in his fifties, worked ten hours a day as a picker, taking items from bins and delivering them to the shelves. He would walk thirteen to fifteen miles daily. He was told he had to pick 1,200 items in a ten-hour shift, or 1 item every thirty seconds. He had to get down on his hands and knees 250 to 300 times a day to do this. He got written up for not working fast enough, and when he was fired only three of the one hundred temporary workers hired with him had survived.²⁶

At the Allentown warehouse, Stephen Dallal, also a "picker," found that his output targets increased the longer he worked at the warehouse, doubling after six months. "It started with 75 pieces an hour, then 100 pieces an hour. Then 150 pieces an hour. They just got faster and faster." He too was written up for not meeting his targets and was fired.²⁷ At the Seattle warehouse where the writer Vanessa Veselka worked as an underground union organizer, an American Stakhnovism pervaded the depot. When she was on the line as a packer and her output slipped, the "lead" was on to her with "I need more from you today. We're trying to hit 14,000 over these next few hours."²⁸

Beyond this poisonous mixture of Taylorism and Stakhnovism, laced with twenty-first-century IT, there is, in Amazon's treatment of its employees, a pervasive culture of meanness and mistrust that sits ill with its moralizing about care and trust—for customers, but

not for the employees. So, for example, the company forces its employees to go through scanning checkpoints when both entering and leaving the depots, to guard against theft, and sets up checkpoints *within* the depot, which employees must stand in line to clear before entering the cafeteria, leading to what Amazon's German employees call *Pausenklau* (break theft), shrinking the employee's lunch break from thirty to twenty minutes, when they barely have time to eat their meal.²⁹

Other examples include providing UK employees with cheap, ill-fitting boots that gave them blisters;³⁰ relying on employment agencies to hire temporary workers whom Amazon can pay less, avoid paying them benefits, and fire them virtually at will; and, in a notorious case, relying on a security firm with alleged neo-Nazi connections that, hired by an employment agency working for Amazon, intimidated temporary workers lodged in a company dormitory near Amazon's depot at Bad Hersfeld, Germany, with guards entering their rooms without permission at all times of the day and night. These practices were exposed in a television documentary shown on the German channel ARD in February 2013.³¹

Perhaps the biggest scandal in Amazon's recent history took place at its Allentown, Pennsylvania, center during the summer of 2011. The scandal was the subject of a prizewinning series in the Allentown newspaper, the *Morning Call*, by its reporter Spencer Soper. The series revealed the lengths Amazon was prepared to go to keep costs down and output high and yielded a singular image of Amazon's ruthlessness—ambulances stationed on hot days at the Amazon center to take employees suffering from heat stroke to the hospital. Despite the summer weather, there was no air-conditioning in the depot, and Amazon refused to let fresh air circulate by opening loading doors at either end of the depot—for fear of theft.

Inside the plant there was no slackening of the pace, even as temperatures rose to more than 100 degrees.³²

On June 2, 2011, a warehouse employee contacted the US Occupational Safety and Health Administration to report that the heat index had reached 102 degrees in the warehouse and that fifteen workers had collapsed. On June 10 OSHA received a message on its complaints hotline from an emergency room doctor at the Lehigh Valley Hospital: "I'd like to report an unsafe environment with an Amazon facility in Fogelsville. . . . Several patients have come in the last couple of days with heat related injuries."

On July 25, with temperatures in the depot reaching 110 degrees, a security guard reported to OSHA that Amazon was refusing to open garage doors to help air circulate and that he had seen two pregnant women taken to a nursing station. Calls to the local ambulance service became so frequent that for five hot days in June and July, ambulances and paramedics were stationed all day at the depot. Commenting on these developments, Vickie Mortimer, general manager of the warehouse, insisted that "the safety and welfare of our employees is our number-one priority at Amazon, and as general manager I take that responsibility seriously." To this end, "Amazon brought 2,000 cooling bandannas which were given to every employee, and those in the dock/trailer yard received cooling vests."³³


WITH WALMART'S AND Amazon's business model, the workplace practices that raise employee productivity to very high levels also keep employees off balance and thus ill placed to secure wage increases that match their increased output. The "cult of the customer" preached by both corporations is a scented smoke screen thrown up to hide this fact. Apart from the model's intensive use of IT, there is not much to distinguish its methods from those of the

primitive American and European capitalism of the late nineteenth and early twentieth centuries. On both sides of the Atlantic, these excesses were harbingers of the rise of the labor movement and the political Left, both revolutionary and democratic, with the movements strongly focused on relations between capital and labor as the central issue of politics and society.

In the United States and the United Kingdom, the parties of the center Left, the Democrats and the Labour Party, have today lost this focus, and the labor movements in both countries are in long-term decline. But in Germany the labor movement remains strong, and on workplace issues the mainstream political parties, the Christian Democrats as well as the Social Democrats, are well to the left of their American and British counterparts. This became apparent following the scandal at Amazon's Bad Hersfeld depot in 2012, when security guards allegedly forced their way into dormitories housing temporary Amazon employees and intimidated them. Amazon faced what *Der Spiegel* called a *Shitstorm* and was strongly criticized by the federal minister of labor, the prime minister of the state government of Hesse, the head of the Labor Office in Hesse, as well as the Social Democratic Party opposition in the federal and state parliaments.³⁴

Amazon was on the defensive, and in an interview with *Spiegel Online* that followed the scandal, Amazon's local CEO, Ralf Kleber, distanced himself from the managerial absolutism of Bezos and Onetto in saying that he would welcome the setting up of more work councils (*Betriebsrat*) at Amazon depots.³⁵ The services union, Ver.Di, was also a beneficiary of the Amazon *Shitstorm*. The union's goal is to organize the whole Amazon workforce in Germany, negotiate wage increases with Amazon management, improve the working conditions of temporary employees, and blunt Amazon's more oppressive workplace practices. In a German political and social

context, it has a good chance of succeeding. Such success would, however, raise issues of ethics and economics that apply equally in a US and UK setting.

Union success would unquestionably raise Amazon's costs and slow the growth of employee productivity. Wages would begin increasing in line with employee productivity, and productivity growth itself would slow as the union and the *Betriebsrat* together blunted Amazon's practice of pushing employees to the limit and beyond. We can be sure that at this point, Amazon would play the "cult of the customer" for all its worth and would do the same in an American setting if faced with the same challenge. So customers would have to start paying more for their packages and could no longer be absolutely certain of receiving delivery of them the very next day. 

But should these marginal benefits to customers really be purchased at the price of a system that treats employees as untrustworthy human robots and relies on intimidation to push them to the limit, while denying them the rewards of their own increased efficiency? This is not a choice to be made solely with the economist's narrow calculations of monetary costs and benefits. In quantitative, monetary terms, the cost to Amazon customers of a benign reengineering of the company would far outweigh the monetary benefits to employees. But what is the real value of such customer inconvenience when set alongside the value lost with the millions of lives damaged by Walmart, Amazon, and their ilk?

3

A FUTURE FOR THE MIDDLE CLASS?

THESE AMAZON AND WALMART HISTORIES ARE PRIME EXAMPLES of how in the early twenty-first century, state-of-the-art information technologies can be used to re-create the harsh, driven capitalism of the pre-New Deal era. With their reliance on tens of thousands of workers to shift goods in stores and warehouses, the two corporations depend heavily on a steady supply of unskilled labor very much in the manner of early-twentieth-century industrial sweatshops. But in their capacity to track employee performance, to speed it up, to measure it against targets, managers at Walmart and Amazon are empowered in ways that their predecessors of a century ago could only dream of.

The countervailing powers of labor unions are needed to offset this management hegemony and to defend the dignity of employees—in securing wage increases that match their increased output, in placing limits on shop-floor "speedup," and in protecting employees

college. With the decline of blue-collar, middle-class unionized factory workers, there is a need to create good jobs for the non-college educated, jobs that are skilled, pay well, and offer the prospects of a career. High-performance call centers can provide such opportunities. But first the industry has to rid itself of the industrial legacy of Frederick Winslow Taylor and Scientific Management.

4

MANAGING THE HUMAN RESOURCE

WHATEVER STRESSES CBSs MAY INFLICT UPON THE WORKFORCES subject to their disciplines—and in the case of Walmart and Amazon, the stress is considerable—CBSs have a natural habitat within which they can often be relied upon to yield strong productivity growth. But this habitat is enclosed within a frontier beyond which the use of CBSs becomes highly problematic, to the point where productivity increases are hard to come by, or are achieved only at a price far outweighing whatever is gained on the productivity side. This frontier does not conform to the economists' conventional distinction between the manufacturing and service economies, but rather conforms to the distinction between those sectors of the economy that are engaged in the manufacture, distribution, and sale of goods and those concerned mostly with direct and complex interactions between human agents.

Historically, CBSs have, as we have seen, taken shape around the tangible objects of manufacture, but also of retail and distribution. Corporations such as Walmart, Amazon, and FedEx, classified

by economists as service companies, are in fact quasi-industrial corporations at the heart of the CBS world as businesses engaged in the distribution and sale of goods. Along with Walmart and FedEx, other pioneers of CBSs are corporations such as Toyota, Nissan, Dell Computer, and UPS. In such businesses where the speed and accuracy of production and distribution are the major determinants of success, the capacity of CBSs to measure virtually everything that happens in factories, warehouses, and depots can be the opening shot in a campaign to find ways of doing things even faster and more accurately.

But the very success of CBSs within this home base has led management theorists, system designers, and CEOs to push forward into the domain of what I will call core services, where the focus is not on the manufacture, movement, and sale of goods, but on the occurrence of complex transactions between human agents, as in financial services, health care, education at all levels, human resource management, and, as we have seen, customer relations management. Involved here is *misindustrialization*. There are two semantic variants of the concept of *industrialization* that have entered the English language: *deindustrialization*, when an economy loses major segments of its manufacturing base, as the United States did at an accelerating pace in the 1970s and early 1980s, and *reindustrialization*, the strategy attempted by the Obama administration during its second term of rebalancing the economy in favor of manufacturing.

But what is misindustrialization, especially in the context of CBSs? It has been the success of CBSs in increasing productivity in the industrial sectors of the economy that has led to their introduction in service sectors, where their use is problematic. So CBSs are expansionist technologies, and the frontier between those sectors of the economy that fall within their domain and those that do not

is constantly shifting as the domain expands. There is, therefore, a need to monitor this moving frontier, just as there was a need to monitor the shifting of the western and eastern fronts during World War II.

As in the industrial sectors, the ability of CBSs to extend their methods of rigorous monitoring and control to the white-collar world depends critically on two kinds of knowledge that the systems can provide: the knowledge of whether key performance indicators are being met, and if they are not, why not. In their literature the CBS designers and the management consultants who help market their products are insistent that the power of CBSs to drill down and monitor the minutiae of production in real time, so critical to their success in an industrial context, is equally applicable to core services.

But in transferring the methods of industrial CBSs to the more complex world of core services, the system designers have had to struggle with a major obstacle. The information pyramid of industrial CBSs pivots on the system's ability to measure precisely the movements of the components, commodities, packages, and finished goods that populate the system as they move between machine shops, assembly lines, warehouses, and retail stores. It is the visibility of processes built around these objects that enables the systems to drill down and discover quickly and in real time why performance lags.

How can this regime of precise measurement and of panoptic managerial vision be transferred to a context where the objects of production are the treatment of sick patients, the transactions between teachers and pupils, or the decisions to hire and fire employees? The answer is that the structure and context of these activities must be expressed in a form that can be captured by the system,

so that their digital representations can then be read and analyzed. But the limits of “capturability” become apparent when one looks at transactions between human agents where attempts to impose “capturability,” and with it the disciplines of CBSs, distort the meaning of what is being done and leave the data thus generated highly vulnerable to GIGO—garbage in, garbage out.

A striking example of this expansionism is the project of reengineering the hiring side of human resource management, described in *Organizing Business Knowledge: The MIT Process Handbook* (2003).¹ This text, perhaps more than any other, gives a strong sense of Business Process Reengineering as no mere management fad but an enduring commitment of the corporate world. The handbook is the physical embodiment of MIT’s online database of five thousand business processes, covering everything from human resource management to book publishing and running a restaurant. The moving force behind the handbook and the database has been Thomas W. Malone, a professor of management at the Sloan School at MIT, formerly director of MIT’s Center for Coordination Science, and now director of the rather Orwellian-sounding Center for Collective Intelligence.

The project is at the intellectual pinnacle of the CBS world, bringing together leading computer scientists, system designers, management theorists, and experts in artificial intelligence and so pointing the way forward for the rank and file of the corporate world. The project’s sponsors have included EDS, Boeing, Intel, UBS, the Defense Advanced Research Projects Agency, and the Defense Logistics Agency. The participation of these Pentagon agencies is significant because it testifies to the long-standing interest of the US military in military versions of CBSs as agents of the “automated battlefield.” Former secretary of defense Donald Rumsfeld’s

enthusiasm for the military versions of CBSs significantly influenced the configuration and training of the US Army for the Second Iraq War. Despite this multidisciplinary provenance, from the outset a relentless industrial vocabulary pervades the MIT discussion of human resource management.

The familiar objective of the MIT researchers is to break down the process of “hiring an employee” into a sequence of subprocesses that can then be expressed in a form that the CBS can read, thus providing executives with a real-time, panoptic view of the corporation’s HRM performance, along with the power to drill down and find the sources of error when key performance indicators are not performing as they should. But this is a more formidable task than the one faced by Walmart managers when they have to figure out how best to capture the movement of consignments of dog food between factory, warehouse, and store.

The chief problem faced by the MIT designers was that, once they started thinking seriously about the “hiring process,” the number of relevant subprocesses began to proliferate, along with the number of possible ways in which the subprocesses could be combined. The designers identified six generic processes common to most hiring projects: “identify staffing needs,” “identify potential sources,” “select human resources,” “make offer,” “install employee,” and finally “pay employee.” But they also identified a further forty-one subprocesses, eleven for “install employee” alone: for example, “install in job environment,” “install in learning environment,” “install by special trainer,” “install by oneself,” “install before work,” and “install during work.”²

One way to deal with this proliferation of processes and subprocesses would be to allow the HR employees to rely on their judgment and experience, shaping the subprocesses to fit the particular

circumstances of the person to be hired or even abandoning the whole “process” format altogether. But this concession to employee expertise blocks the ability of the CBS to capture and monitor the details of work performance. From a reengineering perspective, these self-directed employee activities are an opaque wilderness lying beyond the zone of CBS capturability and can be made sense of only in the context of an unstructured, uncapturable, and time-wasting debriefing between supervisors and subordinates.

Engineers instead have come up with what they call a “process recombinator” that allows the corporation to order and reorder the processes and subprocesses of human resource management. Their agents in this reengineering are the process designers who use the CBS software to embed corporate preferences in the detailed operations of the system. The workings of the recombinator are exceedingly complex, an inevitable consequence of the engineer’s attempts to juggle the hundreds of possible combinations of processes and subprocesses and to anticipate the contingencies that might arise in an activity so subject to the vagaries of human nature and performance as human resource management.

The Rube Goldberg quality of the recombinator is captured by allowing the system designers to speak for themselves in their singular language.³ The recombinator has three offsprings. There is a “subactivity recombinator” that “generates all possible combinations of specializations of the subactivities in the process.” There is a “dependency recombinator” that generates “different combinations of coordination mechanisms for the process dependencies.” Finally, there is a “bundle recombinator” that generates “different combinations of the alternatives in the dimensions represented as a bundle.” This hyperelaborate apparatus of control once again bears the strong imprint of Frederick W. Taylor and Scientific Management,

as it is the expertise of senior executives and system designers whose precepts about how “hiring an employee” should be done become embedded in the system’s enforceable rules.

Another potent weapon of top-down control in HRM is the automated personality tests used by corporations to evaluate the suitability of their prospective employees. Of the six “generic HR processes” identified by the MIT designers, the automated personality test clearly belongs to the third, “select human resources.” In 2004 eighty-nine of the Fortune 100 companies used one such test, the Myers Briggs test. Another automated test, the Wagner Enneagram Personality Style Scale (WEPPS), was used by, among others, AT&T, Boeing, DuPont, General Motors, Hewlett-Packard (HP), Proctor and Gamble, Motorola, Prudential Insurance, and Sony. Both tests take the form of a computerized questionnaire containing multiple-choice questions that the human resource specialist puts to the prospective employee, with the specialist ticking the appropriate multiple-choice boxes as the candidate responds.

Author and journalist Barbara Ehrenreich took the WEPPS test as part of her research for her book *Bait and Switch: The (Futile) Pursuit of the American Dream*. A diagram of how the test worked showed a series of interlocking triangles and circles that made Ehrenreich dizzy just to look at. The test comprised two hundred multiple-choice questions asking her such things as whether she was “sometimes,” “never,” or “always” special, judgmental, procrastinatory, principled, or laid back. The test revealed that Ehrenreich was Original, Effective, Good, and Loving, but that she was also Melancholy, Envious, and Overly Sensitive. The test concluded that she probably did not write very well and should attend “intensive journalistic workshops to polish her writing skills.”⁴ GIGO with a vengeance!

THE INDUSTRIALIZATION OF human resource management brings the disciplines of standardization, measurement, and speed to an activity already strongly rooted within the corporate world. The most egregious example of misindustrialization I have yet come across goes far beyond this world and brings us to the high medieval and Renaissance palaces of the University of Oxford, of all places. Here the agent of misindustrialization is the academic production regime that has enveloped the university, along with all the British universities, during the past twenty-five years, a regime heavily influenced by American management systems, with their regimes of rigorous quantification, their proliferation of key performance indicators, and their omnipresent apparatus of monitoring and control.

Outside of the UK's own business schools, not more than a handful of British academics know where the management systems that so dominate their lives come from and how they have ended up in Oxford, Cambridge, Durham, and points beyond. The most influential of the systems began life, as we have seen, with IT corporations such as IBM, Oracle, and SAP; moved eastward across the Atlantic by way of consulting firms such as McKinsey and Accenture; and reached UK academic institutions through the agency of the UK government and its satellite bureaucracies. Of all the management practices embraced during the past twenty-five years by IT system providers (IBM, Oracle, SAP), consulting firms, and business schools, the one that has had the greatest impact in British academic life is also among the most obscure, the Balanced Scorecard.

The BSC is the brainchild of Robert Kaplan, an academic accountant at the Harvard Business School, and Boston consultant David Norton. On the seventy-fifth anniversary of the *Harvard Business Review* in 1997, its editors judged the BSC to be among the most influential management concepts of the *Review's* lifetime.

Kaplan and Norton have promoted their concept in eight *Harvard Business Review* articles, beginning with "The Balanced Scorecard: Measures That Drive Performance" (January 1992), "Putting the Balanced Scorecard to Work" (September 1993), and "Using the Balanced Scorecard as a Strategic Management System" (January 1996). As befits Kaplan's roots in accountancy, the methodologies of the BSC focus heavily on the setting up, targeting, and measurement of statistical key performance indicators. In their 1992 piece, Kaplan and Norton classify the KPIs of the Balanced Scorecard under four headings: financial performance, internal business processes, innovation and learning, and customer service.

This multiplication of key performance indicators also multiplies the opportunities for top-down monitoring and control, and Kaplan and Norton indeed use the language of aviation and the autopilot to describe the BSC at work: "Think of the balanced scorecard as the dials and indicators in an airplane cockpit," with the CEO, his senior executives, and their system designers in control. That the tentacles of the BSC should have crossed the Atlantic and enveloped the great and ancient university of Oxford, founded in the early thirteenth century and a wellspring of the Western humanist tradition ever since, that Oxford of all places should be subject to misindustrialization, testifies to the metastasizing powers of the CBS world and its capacity to threaten humanist values embedded in institutions located far beyond the frontiers of the market economy, and also far beyond the frontiers of the United States.

For me this misindustrialization of Oxford has been personal history. In 2005 I returned to the university as a late-career academic, forty years after my time there as an undergraduate. My dawning awareness of what had been happening during these intervening decades was a slow-motion version of the experience of

seeing Harold Pinter's late play *Party Time*, the story of how the rituals of bourgeois social life continue on their way as a totalitarian darkness descends around them.⁵ Pinter's late plays became shorter, increasingly political, and preoccupied with the psychological menace not so much of solitary misfits, as in early plays such as *The Homecoming* and *The Caretaker*, but of whole social classes, and especially of the London bourgeoisie empowered by Margaret Thatcher from the 1980s onward.

In *Party Time*'s opening scene, a group of what seem to be London businessmen and financiers is sitting around in their luxury apartment, celebrating their latest material acquisitions, putting down their female companions, and treating all those who come into contact with them with contempt. However, amid this (for Pinter) routine nastiness, his characters let slip comments and allusions that point to the presence of something much more sinister. There is talk of "a bit of a round up this evening," which is coming to an end so that "normal service will be resumed shortly."⁶ The comments are made very much *en passant* because Pinter's heroes don't want to alarm their female companions and spoil the evening's fun, but it gradually dawns on us, the audience, that these are not businessmen at all but operatives of a British Stasi; that Britain has become an authoritarian, fascist state; and that violence and torture are in the air when there's trouble downtown and the regime deals with its opponents.

In invoking this precedent for my encounter with academic misindustrialization at Oxford, I am not suggesting that Britain is succumbing to fascism or that the agents of academic managerialism at the university are heirs of the Stasi. It was the manner of my becoming aware of recent Oxford history that brought to mind Pinter's play. Among many of my academic contacts, there was a

reluctance to provide a full-blooded account of this history. As in *Party Time*, the system made its presence felt through fleeting allusions that only gradually sorted themselves out into something that made sense, and this reticence suggested a certain deference in the face of bureaucratic power.

When describing their day-to-day scholarly lives, my academic contacts used a strange and, in an academic context, unfamiliar language. They spoke of "departmental line managers" who monitored their work. They speculated whether an academic conference they were going to attend would count as an "indicator of esteem." They referred to academics of no great distinction who had been given personal professorships as a reward for their steady output of books, albeit of uneven quality, and to academics from overseas, especially the United States, who had become temporary members of a department, valued for their output of books. Then in 2006 and 2007 the acronym RAE, standing for *Research Assessment Exercise*, began more and more to feature in these remarks. This was the academic production regime, mandated by all UK governments from Margaret Thatcher's time onward and requiring academics to turn out a designated number of books, monographs, or articles in learned journals over a four- or five-year period.

So Dr. X, an academic with a sparse publication record, had not been entered for the RAE by his department, and Dr. Y was in danger of missing his book deadline for the RAE with possibly dire consequences, and the Department of Z, which had not gotten the top grade in the last RAE, was in danger of doing so again and was being hounded by the university administration as a result. What was going on here? It slowly became apparent that much academic life at Oxford was taking place in the shadow of an elaborate system of bureaucratic command and control, put in place by Margaret

Thatcher's Conservative government in the late 1980s, maintained and enlarged by all its success, whether Conservative or Labour, and profoundly influenced by management practices such as the Balanced Scorecard that had originated in the United States.

The intervention of the British state in the management of academic research has created layers of bureaucracy, linking the UK government at the top all the way down to the scholars at the base—researchers working away in libraries, archives, and laboratories. In between are the bureaucracies of HEFCE (the Higher Education Funding Council for England), of the central university administrations, and of the departments of the universities themselves. HEFCE itself is a special state bureaucracy, situated between the government and the universities and set up by the government to handle the detailed administration of the system.

HEFCE's control regime, via the RAE, is an example of quantification and control applied to higher education, serving one of government's chief objectives: to make the universities more like business in the way they conduct their affairs and to give business a greater role in the shaping of academic research. In the words of David Lammy, minister for higher education in the Labour Government of Gordon Brown (2007–2010), but in words that could have been uttered by any of his predecessors or successors of the past twenty-five years: "We propose that the panels assessing [research] impact will include a large proportion of the end-users of research—businesses, public services, policymakers and so on—rather than just academics commenting on each other's work."⁷

The HEFCE control regime relies on a proliferation of key performance indicators whose targets must be met if a university department's research is to be funded. This has led to the measurement and targeting of a scholar's research output and measurement

of the time taken by the scholar to do the research, the money the research brings in, the indexes of impact and esteem surrounding the research, and the grades awarded for research submitted in the RAE, by panels of experts set up by HEFCE.⁸ With 52,409 academics entered for the most recent RAE of 2008, more than 200,000 items of scholarship reached HEFCE. For the previous RAE of 2001, the avalanche of academic work was so great that it had to be stored in an unused aircraft hangar located near HEFCE's headquarters in Bristol, England.

With each RAE the incoming items of scholarship are examined by academics on panels set up by HEFCE to cover every discipline from dentistry to medieval history—sixty-seven in the 2008 RAE. Each panel is usually made up of between ten and twenty specialists selected by their respective disciplines, though subject at all times to HEFCE's rules for the RAE. The panels had to award each submitted work one of four grades, ranging from 4*, the top grade, for work "whose quality is world leading in terms of originality, significance and rigor," to the humble 1*, "recognized nationally in terms of originality, significance, and rigor."

The HEFCE control system is simply a typical corporate Balanced Scorecard dressed up in an unfamiliar language. Writing in January 2010, British biochemist John Allen of the University of London described how this blizzard of targets and metrics descended upon his professional life: "I have had to learn a new and strange vocabulary of 'performance indicators,' 'metrics,' 'indicators of esteem,' 'units of assessment,' 'impact' and 'impact factors.'"⁹ One might also mention tallies of medals, honors, and awards bestowed ("indicators of esteem"); the value of research grants received; the number of graduates and postdoctoral students enrolled; and the volume and quality of "submitted units" of research output.

There is one significant difference between an authentic Balanced Scorecard and the hybrid version imposed on British universities by the UK government, via HEFCE. In the corporate model, the entire apparatus of targeting, monitoring, diagnosis, prescription, and sanction belongs to the corporate mother ship. But in the hybrid British model, HEFCE performs only the first, targeting, function, and the four other functions are devolved to university divisions, departments, and line managers, who carry out the monitoring, diagnostic, prescriptive, and sanctioning tasks on HEFCE's behalf. Here is a description of what it is like to be at the receiving end of the HEFCE/RAE system, from a young and very promising historian working in one of the newer universities in the London area:

The bureaucratization of scholarship in the humanities is simply spirit-crushing. I may prepare an article on extremism, my research area, for publication in a learned journal, and my RAE line manager focuses immediately on the influence of the journal, the number of citations of my text, the amount of pages written, the journal's publisher. Interference by these academic managers is pervasive and creeping. Whether my article is any good, or advances scholarship in the field, are quickly becoming secondary issues. All this may add to academic "productivity," but is it worth selling our collective soul for?

In the twenty-five years the HEFCE system has been in existence, the values of the HEFCE control system have become internalized among many of its subjects in an academic variant of Bentham and Foucault's panopticon, fortified by the old British imperial strategy of divide and rule and also by the techniques of the Toyota production system, whereby the failings of any one member

of the production team become the collective responsibility of the whole team, with the collective resentments of the team adding to the shame of the offending worker—a description that closely fits what can go on in a university department in the run-up to the RAE deadline.