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Engineering Consent:

Overwork and Anxiety at a

High-Tech Firm

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American work hours have increased over the past three decades, affecting families, communities, and the health of workers. This increase cannot be attributed simply to stagnant wages or the decline of unions because the Americans working the longest hours are relatively privileged professional, managerial, and technical workers. This paper explores the causes underlying long work hours among a group of workers on the front line of this trend, software engineers working at a large American high-tech firm (which I call "MegaTech").

My findings, based on in-depth interviews, observation of the workplace, and a review of MegaTech management manuals and other company documents, suggest that an important cause of long work hours is a mode of work organization that I call "competitive self-management." This organizational structure combines two mutually reinforcing management practices: the requirement that employees actively participate in their own management and that mangers periodically rank employees' performance relative to other engineers along a bell-shaped curve. Developing and reconstructing Michael Burawoy's theory regarding the intensification of work effort through the organization of work into an absorbing game, I argue that MegaTech engineers' long work hours are primarily the result of their participation in a high-stakes competition generated by the rules of competitive self-management that keeps them perpetually insecure about their relative performance. While the work game described by Burawoy was embedded in the relatively stable postwar manufacturing economy, competitive self-management creates a work game that is emblematic of the "new economy" and reflects a new strategy of control for employers who must cede greater discretion to their employees. Competitive self-management enables MegaTech to boast of its "flexibility" and respect for worker autonomy while simultaneously producing anxiety about professional competence that propels the engineers in my sample to self-impose an average 67 hours of work per week.

I. The Causes of Rising Work Hours: A Review of the Literature

After steadily decreasing throughout the first half of the twentieth century, in the late 1960s American work hours made a sudden U-turn and began to rise. In *The Overworked American*, Juliet Schor (1991) established that average American work hours increased by 163 hours per year from 1969 to 1987, and the International Labor Organization (1999) recently confirmed that this trend continued throughout the 1990s.[1] In 1999, American workers

surpassed the Japanese to earn the dubious distinction of working the longest hours in the industrialized world (ILO, 1999).

Surprisingly, it is the economically better off professional, managerial, and technical workers who are putting in the longest work hours (Jacobs and Gerson, 1998).[2] Profit-maximizing employers can be expected to seek to elongate the workday, and financially vulnerable workers struggling to make ends meet can be easily coerced to accept longer workdays. However, it is far less evident why workers with comfortable incomes and job security would agree to supply increasingly longer work hours. As Robert Reich (2000, p.5) observes, "[m]any people are working harder because they have to. But here is the strange thing: The richer you are, the more likely it is that you are putting in long and harried hours at work."

Given the significant social consequences of increasing work hours on families (Hochschild, 1997), communities (Putnam, 2000), and worker health (Golden and Jorgensen, 2002), there is surprisingly little research on the causes driving this phenomenon.[3] Studying economically privileged technical workers is important and timely because they represent a rapidly growing sector of the economy.[4] Moreover, financially secure workers, such as MegaTech's engineers, provide a unique opportunity to explore the empirically elusive noneconomic pulls behind the general rise in work hours. Unlike most Americans, who may be driven to work longer hours by an inextricable tangle of economic coercion and noneconomic pulls, the instant sample of relatively privileged workers provides the analytic advantage of bracketing the push of coercion and isolating the forces that pull.

To account for the long and rising work hours of financially privileged workers, Schor (1991) theorizes that workers are motivated by a desire to consume the goods necessary to keep up in the competition for relative status with their neighbors. Reich (2000, p.162) claims that such workers "want to work longer and harder" because increasing wages have increased the financial "costs of *not* working." In *The Time Bind*, Arlie Hochschild (1997) contests Schor's and Reich's foci on material motivations, claiming that many workers are seduced to work long hours by friendly, supportive, and homelike workplaces where they feel relaxed and comfortable. Offering yet another explanation, in *Engineering Culture,* Gideon Kunda (1992) suggests that long work hours may be the result of an "engineered" identification with the company produced

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by techniques of "normative control" that induce the workers to blur the boundaries between their self and the organization.[5]

None of these theories adequately accounts for the long work hours of MegaTech's engineers. My interviews suggest that they are not motivated by a desire for more consumption or income, the seductive comfort of the workplace, or loyalty to their company. To explain their work hours, I draw on the theory Burawoy developed while working as a machine operator at the engine division of "Allied Corporation." Burawoy observed that his colleagues worked hard, "sometimes even exceed[ing] the expectations of those 'people upstairs'" (Burawoy, 1979, p. xi). He theorized that consent to hard work on the shop floor at Allied was "manufactured" through the organization of work as a deeply engrossing game in which workers tried to "make out" by producing a certain number of pieces per hour.

Burawoy's analysis suggests four necessary conditions for work to be organized as a consent-producing game. First, the organization of work must present workers with a realm of meaningful discretion where they are free to make decisions that significantly affect the likelihood of achieving an important outcome. Second, the workers' exercise of discretion should lead to a clear outcome (e.g., a measurable quantity of production). Third, the outcome must be indeterminate ex ante, but not random or unattainable. A game will not "absorb" players if "uncertainty is too great and outcomes are entirely beyond the control of players" or if "uncertainty is too slight" and outcomes are "completely controlled by players" (Burawoy, 1979, p.87). Finally, it is essential that the outcome be truly significant to the workers; there must be some compelling reason why they *care* about the results.[6]

Although a 1970s Chicago machine shop and a turn-of-the-millennium software engineering firm might seem like completely different work contexts, Burawoy's theory provides a valuable framework for understanding the long work hours of MegaTech's engineers as arising from competitive self-management's structuring of work as a consent-producing game. The two central features of competitive self-management are the giving of discretion to the engineers to manage numerous aspects of their work lives and the awarding of ex ante indeterminate "scores" that rank the engineers' performances against those of their peers. These scores are extremely significant to the engineers because they reach the core of their identity as competent and valued professionals.

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II. Work Life at MegaTech and the Product Cycle

MegaTech presents itself as a "fun" company and a natural extension of college for its predominantly young engineers. Its low-rise office buildings are scattered across a large "campus" of well-manicured lawns and athletic fields. Hallways contain Ping-Pong tables and arcade games, and each floor has several refrigerators where employees can get free unlimited sodas. The engineers' offices are usually equipped with stereo systems, CD racks, and college dorm-like posters and decorations.[7] The engineers are casually dressed in jeans and T-shirts, and suits appear to be strictly taboo.

Yet, the Ping-Pong tables are conspicuously vacant, and there is little socializing in the hallways. Most engineers describe spending their typical workday secluded in their office with little time or opportunity for social interaction. The most frequent mode of communication is e-mail, even with colleagues a few doors down the hall.[8] The need to talk to a colleague about a work issue that cannot be dealt with by e-mail arises only once or twice a day, and such conversations generally focus on the work issue at hand. In addition to being unsocial, the engineers described their work environment as "aggressive" and "competitive."[9] The isolated and aggressive reality of daily work contrasts starkly with the haven of collegiate fun that MegaTech tries to create (or at least portray), as well as with the cozy and familial workplace researched by Hochschild (1997). Contrary to the workers observed by Hochschild, who lingrered at their pleasant workplace to *escape their chaotic homes*, MegaTech engineers frequently worked at home, *escaping their tense workplace* in order to get work done. MegaTech's work environment also differed from the high-tech firm researched by Kunda (1992). Although both firms attempted to induce intense work effort without appearing coercive, the management practices each firm deployed to achieve this end were utterly different. Whereas Kunda's firm attempted to *blur the boundaries* between the self and the organization through "cultural engineering," MegaTech's competitive self-management, and the resultant competitive work culture that flowed from this structure, *highlighted the boundaries* between individuals.[10]

MegaTech engineers' day-to-day work revolves around the three phases of the "product cycle." During the first phase, called "milestone zero," the specifications of the software features to be included in the product are determined. This is the shortest phase, normally comprising

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only 5% of the year, and during this period the engineers spend most of their time performing preliminary coding tasks and calculating time estimates for the completion of different coding projects. At this stage, the engineers are recovering from the "crunch mode" that accompanied the last phase of the previous product cycle, and their work hours are at their lowest level, averaging 48 hours per week. It is a "chance to breathe" and a time for the "batteries to get recharged."

During the second phase of the product cycle the bulk of the coding work is performed. This period is divided into several "milestones," about ten weeks apart, with each milestone representing a deadline for the completion of specific "deliverables." During this period, engineers spend most of their time coding and e-mailing or meeting informally with other members of their "team" (teams usually include four to six other engineers) to discuss plans and solve problems. This is the longest phase of the product cycle, comprising roughly 55% of each year. Work hours increase to their "routine" levels of 63 hours per week on average.

The third and final phase of the product cycle (as well as the last two or three weeks before each milestone deadline in the second phase) are known as the "crunch mode" or the "death march," comprising approximately 40% of each year. During this phase, the engineers are no longer writing new code, but focus on fixing the "bugs" in the software they developed in the second phase. In this phase, engineers work an average of 75 hours per week in order to meet the sacrosanct "product shipment date." Finally, when the crunch period is over and the product is shipped, there is a big celebration with champagne and strawberries. Then the next cycle begins. One engineer described the cycle using a driving metaphor: in the first phase, you are "coasting." In the second, you "go fast but are not killing yourself." And finally "it's pedal to the metal" and "total crisis." A full cycle usually takes one to two years.

During crunch periods, and for some engineers during the second phase, it is not unusual to work from 9 a.m. to midnight and not to take a single day off for weeks in a row. One engineer reported "cutting back" his hours after getting married and now working "only" from 9:30 a.m. to 12:30 a.m., with two or three hours off at around dinnertime. Another engineer's wife "demanded" that he work until midnight no more than twice a week or face divorce. The specific work hours of the engineers I interviewed at each phase of the product cycle are detailed in Appendix 1.

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What explains the engineers' work hours? The long hours of technical and professional workers are commonly explained by their supposedly insatiable appetite for higher incomes (Reich, 2000). My interviews, however, revealed that income is not a significant factor behind the engineers' long work hours. No engineer mentioned money or the desire to consume goods as a motivator to work long hours. One may suspect that this finding merely reflects the engineers' hesitation to reveal potentially embarrassing "superficial" desires, but this does not appear to have been the case because, in other contexts, the engineers did openly discuss unflattering feelings, such as envy, anxiety, and fear. When I asked the engineers what it meant to them to receive a pay raise or bonus, most often they replied that these were gratifying as expressions of their professional achievements. It was the symbolic meaning of the money, validating their worth and value, rather than the ability to consume more goods, that the engineers emphasized. My findings thus suggest that although Schor (1991) is correct to emphasize the importance of relative status, she misplaces the locus of status. The status competition that motivates MegaTech's engineers to work long work hours concerns professional competence and not consumption, and the relevant arena for status maintenance is not the neighborhood, but the place where the engineers spend most of their time: the workplace.[11]

Another common explanation for the long work hours of software engineers is enjoyment. Computer programming is frequently portrayed in popular books as a uniquely absorbing activity.[12] The engineers I interviewed did report enjoying aspects of their work, including the "intellectual challenge," the creativity, and the gratification when "your code works." Such enjoyment may account for their decision to become software engineers, but, cannot explain their long working hours. Almost all of the engineers reported feeling that they were working too many hours.[13] If long work hours were merely the result of enjoyment, one would not expect the engineers to be unhappy about them. Furthermore, the engineers performed what they described as the most enjoyable and exciting part of their work during the second phase of the product cycle, when they create new code, but they worked the longest hours during the final crunch phase, when they spend their time fixing "bugs." By contrast to the creative process of generating new code, the engineers described fixing bugs as the dullest aspect of their work and equivalent to proofreading and editing. The fact that the engineers worked

their *longest hours* while performing the *least enjoyable* work strongly suggests that enjoyment cannot account for their long work hours.

In sum, MegaTech engineers' long work hours are not primarily motivated by a pleasant work environment, loyal identification with their company, money, or the joy of coding. Long work hours are also not *officially* required by MegaTech, which proudly boasts of its flexibility. In discussing their work hours, the engineers emphasized their autonomy, frequently pointing out that though they may work long hours, it is ultimately "up to the individual." Yet, no individual engineer chose to work less than 50 hours per week. Why do the engineers "autonomously" choose to work long hours? My findings suggest the main reason is competitive self-management.

III. Competitive Self-Management and Performance Reviews

MegaTech's confidential management manual, which is made available only to employees with supervisory roles, spells out the vision behind competitive self-management:

> MegaTech has found a way to sustain a culture of high personal achievement [utilizing] a performance management system that *creates and drives competitiveness* and achievement. This system helps sustain a level of internal performance excellence that operates almost independently of external market realities. It keeps our people *on the edge*, constantly driving, seeking new ways to excel [emphasis added].

To keep the engineers "on the edge," competitive self-management combines two basic management techniques, which I call "competitive peer ranking" and "supervised self-management." Competitive peer ranking refers to periodic comparisons and relative ranking of employees' performances. The complementary practice of supervised self-management requires the engineers to actively participate in their own management (while managers retain full discretion to alter any of the self-imposed deadlines, plans, or objectives). Neither practice is new.[14] Both appear to be rapidly spreading across corporate America and beyond.[15] But the academic literature has to date not focused on their powerful synergy. At MegaTech, competitive peer ranking generates continuous uncertainty and anxiety among the engineers concerning their relative competence, which drives them to engage in austere self-management, including the self-imposition of ambitious deadlines that entail long work hours.

A. Performance Rankings and Self-Management

MegaTech's management manual explains that at the heart of MegaTech's "performance management system" are frequent performance reviews that "focus on individual results." The performance reviews deploy a "challenging normative rating curve" that ranks individual performances "across relevant peer groups." The manual acknowledges that "this may seem to be an aggressive approach to evaluate performance," but reassures supervisors that this "ensures" that the "most outstanding, driven, passionate . . . performers of that term are setting the standards against which all will be compared."

The performance of all MegaTech employees—including managers—is formally reviewed twice a year. During "review meetings" with their immediate supervisor, employees receive oral and written feedback on their performances over the past six months, as well as numeric scores ranging from 2 to 5 that quantify their supervisor's assessments. The requirement that scores be distributed along a bell-shaped curve means that, regardless of actual overall performance, an equal number of engineers must receive scores that fall above and below the average. The bell curve peaks at the average score of 3.5 with 40% of the engineers, while 30% of the engineers receive a 3 or below and 30% receive a 4 or above.

Very few engineers receive a 2 or 2.5, and receipt of either such score means that "you are on probation and are having real problems." It is "a hint" that you should leave MegaTech.[16] The meaning of a 3 was contested. "Dev-leads," who, in addition to writing code, also supervise and review the performance of three to five engineers, insisted that a 3 means the engineer is "meeting expectations," which "is not bad, but just relatively not as good as others" and suggests the engineer may not be "growing." The engineers, by contrast, interpreted a 3 as "a slap on the wrist," a message that "you should be working a little harder." There was even less consensus on the meaning of a 3.5. Dev-leads explained that, when they give a 3.5, it means the engineer is doing a "pretty good job" or "doing well." The engineers, however, referred to a 3.5 as merely "keeping up with the pack," and most were not satisfied with it. Strikingly, dev-leads who interpreted a 3.5 as "doing well" when *giving* scores stated that, when they *receive* a 3.5, they are disappointed and interpret is as a sign that they need "to improve." One dev-lead, for example, explained that, when he gives a 3.5, it means "a very good job," but when he receives a 3.5, it means "I didn't meet my goals" and "I still have a lot of room for improvement." Finally, as

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with the low scores, there was more consensus regarding the meaning of higher scores. A 4 means "great job;" 4.5s are rare and are interpreted to mean that "everybody is flabbergasted at how much you can get done." None of my interviewees knew anyone who received a 5, but there are "legends."

The employee handbook explains that performance review scores are determined by reference to two standards: (1) did you "meet your objectives?" and (2) did your work make "an important contribution" to the product? Although nothing in these official criteria mentions the number of hours worked, pressures to work long hours are firmly embedded within both.

The first review criterion of meeting your objectives illustrates the workings of supervised self-management. The very wording of this criterion, meeting *your,* as opposed to management's, objectives implies self-determination. During each biannual review meeting, the engineers are asked to "set their objectives" for the next six-month period. The employee handbook encourages employees to "demonstrate an enthusiastic commitment to excellence as you set your performance goals." The setting of "objectives" at the review meeting is actually a reinforcement ritual for a prior moment of self-management. The engineers' work inevitably revolves around two central objectives—completing their coding assignments within the milestone deadlines and fixing all their bugs by the "shipment date." The crucial moment of self-management occurs during the initial "milestone zero" phase of the project, when the various deadlines are set for the completion of coding projects and the "shipping date" is carved into stone.

During the milestone zero phase, managers ask engineers to estimate how many weeks of work each particular feature will require. Although seeming to provide the engineers with control over their schedule, the engineers' descriptions of the estimating process reveal a far more complex reality. To produce these estimates, the engineers would presumably first calculate the total number of hours they expect a coding task to require and then estimate the required number of workweeks by reference to the number of hours they plan to work each week. However, none of the engineers calculated estimates in this manner because, as they repeatedly explained, accurately guessing the total required hours is nearly impossible. Each coding project is unique, and all the different subtasks that will be necessary to make a certain

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feature work cannot be foreseen prior to actually doing the coding work. It's a bit like giving a time estimate for a hike without knowing the topography of the terrain.

Because precise estimates cannot be provided and there is no "objective" way to justify a longer than "usual" estimate, engineers' time estimates depend on their sense of how many weeks it *should* take for a competent and diligent engineer to complete the given type of coding job. The estimates are influenced by the engineers' perceptions of their managers' expectations. One engineer explained, "Even though the managers ask you how long it's going to take, they have something in their mind as well. So if they think it will take shorter than your estimate, you will have to negotiate." Providing a longer than expected estimate is an invitation for a supervisor to say, "I think there may be quicker ways to do this." By contrast, a short time estimate brings "kudos." One engineer described how anticipating what time period a manager may have in mind leads him to provide time estimates that are *shorter* than the manager would have dared suggest because "if someone asks 'when will you have this done?' I always tend to say earlier than when my boss would say I should have it done. He doesn't want to seem like a brute; self-imposition is stricter." The engineers' provision of the initial time estimates and the subsequent writing of their commitment to meeting these estimates as one of "their objectives" during the six-month review meeting lead the engineers to anticipate, and declare as their own, management's expectations regarding reasonable time estimates.

The second criterion by which engineers are reviewed is the importance of their contribution to the product or, as the engineers often call it, the "visibility" of their work. It was widely understood that, independent of the quality of their performance, "the more critical an assignment is to the product, the more recognition you are going to get." [17] The coding tasks that are deemed important are invariably the most complex and time-consuming, and come with the greatest pressure to complete within tight deadlines. In another instance of supervised self-management, engineers are encouraged to proactively negotiate their assignments with their supervisors, and given this review criterion, the engineers predictably lobby for the most "visible" assignment they can receive. To receive such assignments, engineers must "earn the trust" of their manager by demonstrating that they have the ability, drive, and stamina to perform well under strict time pressures. Thus, during any given project, the engineers who are not working on "high-visibility" tasks are working hard to prove themselves capable of handling

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such assignments in the future. As a result, although on the surface the "importance to the project" criterion appears unrelated to work time, in practice, it pushes *all* engineers to work long hours. Secondarily, it also renders the hardest jobs most desirable and prestigious. Those receiving "important" assignments have lobbied for them and feel honored and trusted to have received them, thereby reinforcing their sense of self-determination even as they work long hours to complete such assignments.

When I asked MegaTech engineers to explain their long work hours, a common response was that such hours were necessary "to get their work done on time." At first, I found this answer puzzling because I had also been told by the engineers that hours are "up to the individual" and that they had meaningful say over which projects they received and the deadlines for completing them. The apparent tension in the engineers' responses vanished once their discretion over which assignments to request and what time estimates to provide was placed in the context of the ever-looming bell-curved performance review system.

B. Bell-Curved Scores and Uncertainty

Although the review criteria are clear, the review structure ensures that all engineers—even experienced veterans who provide short estimates and receive important assignments—are *never* totally secure that their performances will be judged as above average or even as a competent 3.5 ("keeping up with the pack"). There are two structural reasons for the engineers' ever-present uncertainty. First, individual scores are strictly relative to the performances of other engineers, which for any particular engineer in the midst of a coding project is difficult to gauge. The management manual reveals that uncertainty about the scores is an intended consequence of the system, advising managers to clarify to their engineers that "*performing as well as the last review period in no way guarantees an equivalent rating this term.*" The manual also warns managers to "take caution when an employee asks 'tell me what I need to do to get' a [high rating]" because the relative ranking system provides no absolute standard for good performance. As one engineer described it, "it's not like, if you do this, you get a good score. It's you do this and then you are compared to others." Although the engineers set forth "objectives" for each review period, merely "meeting your objectives" i.e., doing everything that "you" set forth at the prior six-month review session, is not enough to assure even an average score. As one engineer

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explained, "In reality, everyone is trying to *exceed* their objectives. Meeting your objectives, that's like doing satisfactory work, so you try to do extra."   Yet, it is never clear how much "exceeding" of objectives will be necessary to get a 4 or even a 3.5.

Uncertainty regarding performance scores is further sustained by the continuous escalation of competition and expectations as engineers acquire greater skill and experience. Each engineer is located within a hierarchy of experience levels. Each of these levels has its own compensation curve and expectations about the engineer's ability. When engineers are ranked during the review process, their performance is not compared to that of all engineers performing similar tasks, but only against engineers at their experience level. Engineers who receive a 4 or a few consecutive 3.5s are promoted to the next level. The promotion in levels does not change the kind of work performed, but heightens the level of competition. After each such promotion, as one engineer lamented, "chances are you won't do as well 'cause you are being compared to a better set of people."   The upshot is that there are no resting points in a MegaTech engineer's career. "It's this treadmill where you are blowing out your expectations by doing more, then they get reset, and then you have to do even more." The system is designed so that no one can "coast," secure in the feeling that he or she is doing a great or competent job.

I have explained how the performance review criteria indirectly link long work hours to performance scores and the structures that keep engineers perpetually uncertain about their scores.   Yet, uncertainty alone is not enough to generate an engrossing and anxiety-inducing work game. Competitive self-management succeeds only because the engineers deeply care about their review scores.

C. The Significance of Review Scores

The review scores are profoundly meaningful to the engineers because they are *the* primary way by which they come to feel that they are professionally competent and valued. In discussing their work lives, the engineers do not present themselves as simply "making a living," but as the proud possessors of skills and abilities that they believe meaningfully contribute to the creation of socially valuable products. Central to their self-image is a sense of competence, if not mastery, and usefulness, if not indispensability, to their product teams. Every six months MegaTech's review process puts the engineers' self-image to the test, when they find out in

unambiguous terms whether they are good, average, or below average and whether their contributions are considered "important."[18] As one engineer put it, a good review score means that "my work has been noticed and I have gotten some confirmation of my abilities."

Competitive peer ranking means that, in order for MegaTech engineers to be validated in their belief that they are "good" in their work, they must perform better than 70% of their peers, and to avoid the humiliating slap of a "below-average" ranking, they must perform better than at least 30% of their colleagues. In this context, MegaTech engineers "choose" to self-impose long work hours. Long hours are the price of being "good" and "valuable." [19]

MegaTech's review process was significant not only for the engineers' self-image, but equally so for their social standing. Although the scores remained confidential, the engineers could roughly determine who is doing relatively well depending on the importance of the assignments each received. Some engineers sought to prove that they were *the* "go-to guy," but a central concern for many others was to avoid appearing like a "slacker" and to "keep up with the pack." One engineer expressed this anxiety as follows:

> I always find myself working that much because I feel that I am going to fall behind the curve if I don't. I think it's something that probably a lot of MegaTech people feel, and it could be a pressure put upon myself, and I guess the problem is they hire a lot of bright people at MegaTech, and everybody is used to being really good at school or whatever and it's hard to give that up. I guess it kind of scares me when I think that I could be using this time to better myself at work but instead I'm sleeping or instead or I'm just goofing around.   If I am not using my time wisely, then, you know, relatively I may not do as well when I am compared to my peers. I don't want to fall behind the curve, right. It's important because career wise you want, I think, at least I can say for myself, I want to be valued as a member of the team, right, and just self-esteem [nervous laugh].   If I were at another company, I probably wouldn't work as hard because I wouldn't have the competition that I have here.

V. Competitive Self-Management's Effects on Individual Workers

Although competitive self-management powerfully drives the engineers to work long hours, my interviews revealed that each engineer's subjective experience of this management system was to some extent unique, being affected to a greater or lesser extent by different elements of the system. One important dimension of subjective variation revolved around the degree to which the pressure created by competitive peer ranking was experienced as negative

anxiety or as an exciting positive stimulus. Many engineers reported feeling a combination of both, with negative anxiety being the more salient response.

To illustrate the different ways in which the system motivates long work hours, I compare its effects on two engineers. Charlie and Tom are both married white males in their early thirties from middle-class backgrounds. Although they work in different product divisions, as dev-leads Charlie and Tom occupy parallel locations within the organizational hierarchy of MegaTech. Both work long hours and are deeply affected by competitive peer ranking, but *how* the ranking affects each of them is different.

Charlie typically works from 9 a.m. to 9 p.m. on weekdays and usually does not work weekends. He enjoys "certain aspects of his work," particularly "solving tangible problems" and "building things." He explains that, for him, writing code is like "woodworking or building houses," and it gives him a "sense of accomplishment." In discussing his long work hours, Charlie initially explained that he really enjoys his work, comparing himself to a dedicated "craftsman" working long hours out of choice. However, as typically occurred in the course of my interviews, at a later stage when I again asked Charlie about his present work hours, his answer revealed a more complex picture:

> OS: How do you feel about your current work hours?
> C: Um, I think it's too much. I'd love to work 40 hours a week, but its not going to happen.
> OS: So 40 hours is not possible?
> C: Yes, it's not practical. I couldn't get what I need to get done.
> OS: What if you lessened your load?
> C: Well, if I lessened my load, I would have less responsibility. I wouldn't get a good review score, that'd be OK, I guess. [long pause] These questions that you ask spawn a certain amount of introspection, I guess you'd call it. I find that I am contradicting myself in some of my answers here. It's making me think about it. . . . I hear stories of in Germany everybody takes two months off, and I think wow, great, but I couldn't do that. I'd feel guilty about it. I don't know if that's self-imposed or imposed by MegaTech culture or what...

By "MegaTech culture," Charlie explained that he meant the atmosphere of competition he feels in his work group regarding review scores:

> OS: That competition, how does it play out? How do you feel that there is competition?
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> C: It's not necessarily competition with one another because you don't share your review score. It's not like you go to lunch and say, "Hey show me what you got. Right. Oh you suck." It's not like that at all. When you get a good review score, you know

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you are doing a good job. It's competition with yourself and implicit competition with your peers. Because if you get a 4 you did better than x percent. It's really covert, I'd say, that if there is any, I [long pause], I'm having a really difficult time answering your question actually, um. I think part of it is, I am having a hard time articulating what my motivating factors are. Why do I work hard, why am I here so often, what keeps me here. I'm having a difficult time articulating, and I think the reason is that most of the factors, most of the motivation is really a covert kind of subtle thing. If I am not working many hours it's not like someone comes in and says, "Hey you are not working enough hours,." Right, there are subtle sort[s] of pressure that I feel, and I don't know if it's self-imposed or it's external.

Charlie's confusion and his reference to "covert" and "subtle" pressures reveal that the review scores play an ordinarily unacknowledged role in motivating him to work the hours that he does. Charlie usually imagines his long work hours to arise from enjoyment or dedication to his craft. However, in the course of the interview, he painfully acknowledged the "covert" pressure exerted by the review scores.

By contrast to Charlie, Tom provides the clearest example of an engineer *positively* driven by the competition created by the performance review process. Like Charlie, Tom averages 12 hours of work per weekday, but he typically works an additional 4 to 5 hours on weekends. He enjoys the "technical challenges" presented by his work and describes his work hours as largely self-imposed because of his "really wanting to code particular features." But, like Charlie, as the interview progressed, further layers of motivation became apparent. When I asked Tom: "what does your work mean to you?" after a long pause and a deep breath, Tom responded: "work is the place I feel most empowered" and "competent." He continued:

It's just a place where I've been recognized as a star, you know, from previous performance evaluations and all that, and that means a lot to me. That actually really motivates me, which is interesting from an organizational standpoint. I think that this is what MegaTech has in mind . . .

He then elaborated on the meaning of the review scores, and how he is made to feel like a "star":

My running average is actually more than a 4 [laughing] which I am cognizant of. And while that's something that's not public at all, it's just between me and my manager, it's something that I personally take a great deal of pride in and a great deal of satisfaction cause I know that I am at a company that's doing some amazing things, and I am right up there with some of the best people in a group of really smart people. So I feel like I'm pretty smart, but sometimes I have to work

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hard to make up the difference between me and these real genius people [laugh]. So that's part of what motivates me to work hard.

Tom explained that when he first arrived at MegaTech he wanted to "prove that [he] belonged" and then "at some point it was kind of trying to prove that I am not just on the Olympic team but I am going to get a medal to boot, I am going to be one of the best achievers here."

The competitive review system drives both Charlie and Tom to work long hours, but this common pattern of behavior masks a significant subjective difference in how the system affects each of them. Charlie sees himself as a devoted craftsman choosing to work long hours, and only with great difficulty acknowledges that he is pushed by subtle pressures arising from the review system. By contrast, Tom sees himself as a "star," basking in his high review scores. Unlike Charlie, Tom does not seem haunted by "subtle" pressures, but openly acknowledges the fact that the review scores motivate him. While it can be generally said that most engineers experienced the review system in a manner that more resembles Charlie, and Tom was the only engineer reporting predominantly positive effects, the subjective response of each engineer was unique, and several engineers did express some degree of positive stimulation.

VI. Comparing Industrial and "New Economy" Work Games: Allied Versus MegaTech

The "work games" at Burawoy's Allied and at MegaTech share some basic characteristics. At both workplaces, workers are given discretion to make decisions that directly affect the attainment of an uncertain outcome that carries important consequences. Yet, although both Allied and MegaTech workers increased their work effort as a result of becoming engrossed in these games, the different structures of the games resulted in a qualitatively deeper level of absorption for MegaTech engineers, driving them not only to work intensely, but also to devote most of their waking hours to work.

The differences in the work games I detail in this section reflect the shifts in work relations that have occurred over the past 30 years. In recent decades, a dramatic change has occurred in the relationship between firms and employees, with decreased employment stability and security and increased individuation, competition and employee involvement (Osterman, 1999; Smith, 1997). As Paul Osterman (1999, pp.60-61) observes, the "postwar model" of work promoted "stability and equity," but under the new model of work organization that began to

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emerge during the 1980s, pay and advancement are "increasingly dependent on the performance and characteristics of individuals," most dramatically through the use of "forced distributions." Consistent with this broad view, Allied's work game mirrors the postwar era of stability, cooperation, and relative worker solidarity; MegaTech's game is emblematic of the current period of insecurity, heightened individuation, employee involvement, and competition.

MegaTech's game is significantly more competitive and individualistic than Allied's. Greater competition is built into the structure of the MegaTech game because, unlike Allied, where on any given day all workers could theoretically "make out," MegaTech engineers must directly compete with their colleagues for scarce recognition. For every engineer ranked above average, another engineer must be ranked below average. The lower level of competition at Allied is evident in the machine operators' cooperation to honor a maximum limit on individual production to avoid "price cuts" by management (Burawoy, 1979, p.51). By contrast, MegaTech engineers placed no restraints on their competition and never even raised the possibility of cooperation in the interviews. Although recognizing that colleagues who work 70 or 80 hours per week raise the bar for everyone else, they did not stigmatize long working engineers for rate busting but generally admired them as the "go-to guys." The lack of cooperation among engineers may be partly attributable to the thinness and permeability of the line between engineers and managers. Supervised self-management entrusts engineers with significant decision-making prerogatives. Moreover, after only a few years at MegaTech, many engineers are promoted to the position of dev-lead, which makes them semi managers by requiring them to supervise and evaluate the performance of four to six more junior engineers.

In addition to its more competitive nature, structural features of the MegaTech game induce greater insecurity and anxiety. First, MegaTech engineers face a higher level of uncertainty regarding their performances than Allied workers. The skills needed to "make out" at Allied remained stable, such that "as operators gain[ed] in experience and seniority," uncertainty was reduced (Burawoy, 1979, p.90). MegaTech workers face a *continuous escalation of expectations,* and thus perpetual insecurity, as they are promoted to new levels of competition with increased experience. The anxiety generated by the greater level of uncertainty is amplified by the significantly longer time horizon of the MegaTech game. At Allied, workers judged their performances on a daily basis, with games constituting discrete

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daily events. A good day of "making out" at Allied brought immediate psychological rewards, and a single bad day was not much cause for stress because it did not affect the next day's outcome.

By contrast, for MegaTech engineers, performance is judged in six-month intervals. When one is working under tight deadlines, a few bad days may have ripple effects that significantly affect their ability to complete their projects on time, and thus may affect their review score. At the same time, a good day of coding is but a small step toward achieving the desired outcome months down the road. Thus, for the engineers, there is no relief from anxiety at the end of the workday. Finally, under supervised self-management, MegaTech engineers are compelled constantly to make decisions that have significant implications for their success, with a far larger realm of discretion than that offered to Allied workers. Allied workers "made out" or not depending on their strategic production choices and relationships with ancillary workers (Burawoy, 1979, p.57); MegaTech engineers not only need to decide how to tackle their coding assignments, but also to strategize about which assignments to seek, what kind of time estimates to provide for their completion, and most basically, how much time to work each day. This greater level of discretion, in the context of the longer temporal scope of the MegaTech game, further contributes to the more intense stress and pressure.

One telling manifestation of the difference in the nature of the games was Allied workers' openness in discussing outcomes. Burawoy (1979, p.63) reports that at Allied, "when someone walks over to talk, his first question is 'are you making out? What's the rate?'" And "lunch time is a postmortem on the first half of the shift." While Allied workers engage in continuous debriefings, MegaTech engineers treat their "scores" with utmost secretiveness. It is considered "tactless" to ask someone his or her score and a tense silence surrounds the topic. Even friends who eat lunch together every day and socialize outside work refrain from discussing their scores. One engineer explained that sharing such information is a bad idea because "someone has to come out at the bottom." The difference between these work games is strikingly analogous to Weber's comparison of Catholicism to Calvinism. Catholicism allows practitioners to frequently release their anxiety through atonement and confession, and to start each day anew. Calvinism, by contrast, induces deep anxiety among its faithful because they are never quite certain whether

they are one of the "elect," and they can only engage in intense "worldly activity" to reduce their stress.[20]

In sum, the games fundamentally differ in the degree of competition, insecurity, and anxiety they induce. This finding is consistent with the broadly observed patterns in the transformation of work over recent decades. The "new economy" presents employers with the difficult challenge of maintaining control over their employees while simultaneously giving them greater discretion. Taylorist methods are not appropriate for the creation of software or for an increasing number of other jobs. MegaTech's competitive self-management solves the problem of control in a way that mirrors broader trends, by increasing both autonomy and insecurity at the same time.

The differences in the games lead to different outcomes for the workers. Absorption in the "making out" game may have induced Allied workers to intensify their work effort during their eight-hour shift, but it did not invade their lives outside the factory. By contrast, the MegaTech game deeply touches the engineers' sense of self, fostering anxious competition over professional competence and rendering it difficult for the engineers to "waste time" engaging in any activity outside work.

VII. Consent and Legitimacy

Despite causing intense anxiety, competitive peer ranking is largely accepted without resistance or resentment.[21] Although the engineers acknowledged that, in some unusual cases, the review scores are based on "political" calculations and not merit, by and large the ranking system was viewed as fair and as a source of internal pride and social status.[22] Even an engineer who received a low score was not critical of the competitive peer ranking system per se, but only of how it was applied in his case.[23] One manifestation of the legitimacy of the scores is the previously discussed secretiveness that surrounds them. My findings suggest that the dearth of resistance is the result of consent arising from the organization of work and notions of legitimacy brought by the engineers to the workplace.

The engineers' consent to competitive peer ranking with its rigid bell curve distribution is foremost the product of supervised self-management. By granting the engineers decision-making discretion over the length and intensity of their work, MegaTech appears to respect the

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engineers' autonomy and to treat them as responsible adults.[24] At a more specific level, the engineers' consent to their individual scores, is also fostered by a more particular deployment of supervised self-management. Prior to being reviewed by their supervisors, engineers are required to evaluate their own performance and assign themselves a score. The engineers describe this self-evaluation as "a chance to enumerate and explain your accomplishments" and "reflect on how you can improve." As with previously discussed instances of supervised self-management, such as "setting your own goals," this practice compels the engineers to actively participate in their own management and to take the perspective of their supervisors—often resulting in the engineers being their own harshest critics. For example, one gave himself a mediocre score despite feeling that he did a "stellar" job because, during the previous six-month period, "I didn't ship anything." The engineer explained that, even though shipment was out of his control and did not reflect anything about his performance, he nonetheless felt that he didn't accomplish anything "tangible" that "made MegaTech money," and therefore he did not deserve a high score.[25]

While self-management promotes consent, a further reason for the acceptance of the competitive ranking system is its legitimacy as a natural continuation of grading practices that the engineers had grown accustomed to in school. The remarkable similarity between the twice a year reviews and the familiar end of the semester report card was not lost on the engineers. As one stated in discussing the review system, "I think the review model is actually really valuable in the same way that grades are really valuable. People may disagree; some like schools where there are no grades, personally, I wouldn't like that at all." Several engineers explicitly equated their review scores to letter grades at school, comparing a 3 to a C, a 3.5 to a B, and a 4 to an A. One likened getting a good review score to "being the smartest guy in class." Another stated, "Everybody likes to get an A."

In addition to their specific experiences with curved grading in school, I further hypothesize that the legitimacy of competitive self-management is facilitated by its consonance with the American labor market in which it is embedded. The American labor market, in a fashion remarkably similar to competitive self-management, meets the essential conditions for a Burawoyan consent-producing game. Participants are immersed in a high-stakes game for their economic survival, with wide discretion in making strategic decisions that critically determine

the outcomes. The labor market game contains uncertainty, with possible outcomes ranging from millionaire "winners" to highly tabooed poor "losers." The structural uncertainty is fostered by, on the one hand, the virtual absence of a safety net to prevent participants from falling into poverty, and on the other hand, well-publicized and culturally deified rags-to-riches stories.[26] The analogy is particularly striking with respect to the "new economy" where all workers are encouraged to view themselves as individual entrepreneurs who are perpetually building their "employability" through a lifelong series of career decisions that critically affect their employment outcomes in an uncertain and competitive job market.[27] Whether intentionally or not, MegaTech's system of competitive self-management replicates certain central features of the larger economy, and the acceptance of this system by the engineers is likely aided by its harmony with the larger economy. Although the engineers acknowledge that competitive self-management fosters an aggressive workplace environment and produces anxiety, it is difficult for them to question the legitimacy of a system that mirrors the principles of the larger economy and society.[28]

While this paper builds on Burawoy's theory of work as a consent-producing game, it also reconstructs his theory by attending to the indispensable role of the wider social-cultural context in legitimating the rules of work games. Using Gramsci's claim that in the United States hegemony is "born in the factory" as his theoretical starting point, Burawoy (1979, pp. xii, 135) argues that workers' consent to hard work is "produced at the point of production" and is "independent of schooling, family life, mass media, the state and so forth." Burawoy's notion of "consent" exclusively focuses on how the internal structure of the workplace organizes activities, choices, and rewards. Burawoy expressly rejects the role of externally produced "legitimacy," "imported consciousness," or any other "subjective state of mind" that individuals bring to the workplace from outside (1979, p.27).

Burawoy's focus on the effects of organizational structures was a useful corrective to the oversocialized conception of individuals as preprogrammed by external sources to accept the legitimacy of work conditions. Unfortunately, Burawoy replaces this oversocialized conception with an impoverished view of the relationship between individuals and society, implausibly dismissing the role of external social and cultural context in shaping workers' response to workplace structures.[29]

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The analysis of MegaTech engineers in this paper illustrates the need to re-import external consciousness into Burawoy's theory of work. Imported consciousness appears most significant to the workers' acceptance of the legitimacy of the rules of the work game. As previously discussed, the engineers' acceptance of competitive self-management is partly the result of its consonance with the rules of the "new economy" labor market game, as well as their prior school experiences with curved grading. Thus, Burawoy's (1979, p.201) categorical assertion that consent "is not dependent on legitimacy drummed into people's heads in schools" requires modification. Although I agree that schooling does not necessarily socialize the engineers to work long hours, their school experiences with curved grading do make MegaTech's competitive peer ranking appear normal, useful, and beyond contestation. In addition to explaining the *legitimacy* of the rules of the game, one must also look outside the workplace to account for the enormous *significance* that the engineers attach to their performance review scores and the centrality of relative competence to their (male) identities.[30] One plausible hypothesis is that the source of American workers' deep concern with their relative professional competence partly stems from an increasingly hegemonic ideology in the United States that success at one's work is *the* defining element of one's (masculine) identity. This hypothesis could be tested by comparing the effects of similar workplace organizations in different cultures and across genders.

My divergence with Burawoy regarding the relevance of externally produced consciousness can be explained in at least two ways. First, legitimacy is likely to be more essential to the success of MegaTech's game than Allied's. Because MegaTech engineers are relatively empowered economic actors who can easily find work at other firms, it is crucial that the design of MegaTech's management structure be harmonious with their expectations and sense of fairness. By contrast, Allied's factory workers were far less mobile, with no certainty of alternative employment, and therefore it was less imperative that they accept the legitimacy of their work rules. Second, the salience of externally produced consciousness may also be an artifact of methodology. As discussed in Appendix 2, the in-depth interviews used in this study are more likely to reveal differences among workers than Burawoy's method of participant observation. The finding of differences among workers who are similarly situated within the

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internal structure of the workplace, such as the differences between Charlie and Tom, point to role of external factors.

IX. Conclusion: Implications For Theory, Research and Social Change

In this paper I explored the causes driving economically privileged high-tech engineers to work long hours. Although a qualitative case study of a single firm cannot purport to provide a general explanation, it can test existing theories and suggest directions for future research.

My interviews revealed that MegaTech engineers are not driven to work long hours by a desire for greater consumption (Schor, 1991), the opportunity costs of not working (Reich, 2000), a seductively homelike workplace (Hochschild, 1997), or loyal identification with their company (Kunda, 1992).

In explaining MegaTech engineers' long work hours, I have built on Burawoy's insight that intense work effort can be stimulated by an organizational structure that turns work activities into an absorbing high-stakes game with uncertain but important outcomes. This paper develops Burawoy's theory by distilling the essential conditions for work to be organized as a consent-producing game and illustrating how these conditions can obtain outside the factory piece-rate context. *Manufacturing Consent* has been criticized for its supposedly dated and narrow focus on piece-rate factory work (e.g., Leidner, 2001; Pierce, 2001). This paper's application of Burawoy's framework to a modern high-tech firm illustrates its relevance to other work contexts, including the paradigmatic "new economy" work site with its distinctly non-industrial work process. The applicability of Burawoy's theory does not depend on what is being produced, whether products in a factory or services in an office, but on the mode of workplace organization. Specifically, Burawoy's work game analysis is potentially applicable to any workplace that provides employees with a realm of discretion to make decisions that materially affect the likelihood of attaining an uncertain but significant outcome. Because Burawoy anticipated modern management techniques of giving employees greater discretion to make decisions that importantly affect their uncertain careers, contrary to these critics, his theory may be *more* applicable to the "new economy" than to the old.

I reconstruct Burawoy's theory by pointing to the importance of the external social-cultural context in which the workplace is embedded to legitimate the rules of the work game. I

also suggest that a certain type of work game may be characteristic of the "new economy." While the game may assume any number of particular forms (with competitive self-management constituting only one of many possible permutations), it can be expected to combine two of the most salient features of work in the new millennium, namely, increased employee decision-making discretion and heightened insecurity.

At a more specific level, this paper points to the need for further research on competitive self-management or similar practices using curved grading to review employees' performances. The recent adoption of curved grading by two of the largest corporations in the United States, Ford Motor Company and General Electric (as well as by one of Japan's largest trading houses, Nissho Iwai Corporation) suggests that this practice is spreading across corporate America and beyond. Further research could investigate the diffusion of curved grading and explore the conditions under which it has stronger or weaker effects on workers. This paper's modification of Burawoy's theory regarding the importance of external sources of consciousness implies a hypothesis regarding any cross-cultural comparative study. It suggests that competitive self-management would more likely be accepted as *legitimate* by workers in a society where the practice harmoniously fits with the general economic structure and culture and where similar practices are deployed in other institutional contexts (such as in schools). Further research could also attempt to explore the gendered nature of the engineers' response to competitive self-management. If the intense anxiety exhibited by the engineers about their relative professional competence is partly a function of internalized notions of masculinity, then we would expect cross-gender comparisons to reveal different patterns of response to practices such as competitive self-management.

The central finding of this paper, that long work hours are the result of management techniques that absorb workers in an anxious game of proving their competence, has important implications for the possibility of social change. For those concerned about the effects of rising work hours on families and communities, it is critical to understand the causes underlying this phenomenon. The analysis in this paper suggests that merely pushing firms to change their formal policies regarding work hours may not be enough. As this paper illustrates, official flexibility can be rendered meaningless by organizational structures such as competitive self-management. Because competitive self-management drives the engineers to impose long hours

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on themselves, MegaTech does not need to require any particular number of hours and can "safely" offer various "programs" promoting work-family balance that earn it a prestigious spot in the top half of *Fortune* magazine's list of the "100 Best Companies To Work For."[31]

The explanation of any social phenomenon provides direction to those interested in changing it. The findings of this study suggest that change requires focusing on the structures of workplace organization and particularly the mechanisms for determining professional competence. Although profit-seeking employers who benefit from spiraling and anxious competition among workers can be expected to make the recognition of competence scarce, standards of competence do not have to be monopolized by employers. Professional associations, or other worker-controlled institutions, can reclaim from corporate management the standards for competence and value and define these in a manner that allows for useful economic production while also preserving the well-being of the communities and families currently under assault by rising work hours.

APPENDIX 1 : Breakdown of Work Hours

Engineers	Phase I "Milestone Zero" Hours 5%/year	Phase II "Regular" Hours 55%/year	Phase III "Crunch" Hours 40%/year	Weighted Annual Average
Frank	48	67	82	72
Sean	45	63	78	68
Ernest	55	80	95	85
Bob	42	55	65	58
Barry	50	84	88	84
Doug	45	47	54	50
Charlie	48	60	75	65
Albert	45	54	60	56
Tom	48	64	76	68
Dan	46	52	57	54
Howard	56	71	99	81
Nick	42	57	67	60
Average	**48**	**63**	**75**	**67**

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APPENDIX 2: Methods and Data

To explore the causes underlying the long work hours at MegaTech, I conducted a total of 14 interviews with MegaTech employees, directly observed the workplace, and reviewed company materials such as the confidential management manual, the human resources web page, and the employee handbook. I used two unrelated personal contacts to find my initial interview subjects at MegaTech, and then relied on snowball technique to find the remainder of the interviewees. Ten of the 14 interviews were open-ended and lasted approximately two hours each. I conducted these interviews in the employees' offices, enabling me to observe their work environment, from their office decorations to the social atmosphere in the hallways. After the interviews, I occasionally lingered around the workplace, shadowing the engineers as they went about their work. Subsequent to completing these 10 interviews at the work site I decided to conduct 4 more interviews to obtain further data regarding the specific practices that I describe in this paper. These interviews were conducted by telephone. Aside from the interviews, direct observations, and documents, I gathered additional data by walking around the MegaTech campus, having lunch at the employee-only cafeterias, and touring the employee-only MegaTech "museum."

My sample consisted of 13 men and 1 woman, 9 of whom were married. Their ages ranged from 25 to 38, with an average age of 30. Their tenure at MegaTech ranged from 2.5 years to 10 years, with an average of 5 years. Eight of the 14 interviewees had held at least one job prior to MegaTech. Twelve of the 14 interviewees were software engineers, including 6 "developers" and six "dev-leads." Developers are engineers exclusively engaged in writing software code, and dev-leads are one rung up the managerial hierarchy and are involved in both writing code (40% of their time) and supervising 3 to 5 developers (60% of their time). The 12 engineers were dispersed among various product divisions at MegaTech, such as audio-video software and computer games. The two non-engineers that I interviewed provided a unique perspective on their engineer colleagues from their position internal to the company but external to the engineers' work teams and culture. Both non-engineers were marketing researchers who work together with engineers in designing products. Because this paper focuses on engineers, my interviews of the non-engineers did not deal with their work experiences per se but with their perceptions of the work lives and motivations of the engineers with whom they work.

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In comparing my findings to Burawoy's, I note the implications of studying a workplace through in-depth interviews versus participant observation. When using participant observation, as Burawoy does, one learns both what the workers actually do (as distinguished from what they say they do) and how they present themselves to their workmates. By contrast, a researcher conducting in-depth interviews gains access to the workers' thoughts and feelings that may not be publicly shared. A researcher observing individuals in the context of their daily work will most likely hear them talk "the talk" and express the thoughts and sentiments that fit the group norms and do not make them vulnerable to teasing (or, in the male-dominated worlds of engineers and manufacturing workers, make them appear weak or unmasculine). Although the banter of colleagues at work presents extremely valuable data because it provides an account of the workers' social environment, the content of such banter better reflects the type of talk that brings social rewards than an accurate representation of the mental states of the workers. In the context of my research at MegaTech, two engineers told me that the interviews felt like a "therapy session," and several others commented on how the interview allowed them to step back and introspect. I believe that, much like conversations among strangers on an airplane, the fact that I was not a member of their social group freed the engineers to discuss the ways in which they differ from one another and from the prevailing norms and expectations. The previously described interview with Charlie, with its long pauses and hesitant revelations of painful pressures, presents a vivid example of internal data that would not ordinarily be shared in a work setting with one's peers. Charlie was more the rule than the exception. Most engineers were visibly uncomfortable when sharing (or perhaps even acknowledging to themselves) the extent to which they are affected by competitive anxiety. During most interviews the enjoyment motive came up first; the anxiety came out only at the later stages of the interview and hesitatingly so. For some, even acknowledging positive motivations from the review structure was uncomfortable. As one engineer qualified his happiness from getting a high review score, "It's not that I am trying to please them or something like that. It's not to be recognized." Resisting the implications that they are affected by the system of competitive self-management, even when acknowledging pressures, the engineers sought to hold on to a sense of personal choice and self-determination that is not a product of negative pressures or positive status rewards, but stems from entirely internal factors such as enjoyment. Given the engineers' reluctance to share their

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anxieties, not only participant observation, but survey research as well, would not likely obtain this sort of data because surveys do not permit probing beneath initial reactions.

For these reasons, participant observation and in-depth interviews capture different parts of the complex social-psychological reality of the workplace. Burawoy (1979, p.138) claims that how "workers couch and rationalize their behavior is no necessary guide to the patterns of their actual behavior, but it is also equally true that how workers behave and present themselves to each other is no sure guide to how they truly feel and understand their work environment. Burawoy's claim that consent is entirely produced at the point of production and is not affected by "imported consciousness" implicitly rests on his empirical findings that identically situated workers' attitudes and perspectives toward "making out" were more or less uniform (1979, p.64). I propose that this uniformity in attitude may be partly a product of Burawoy's methodology because participant observation tends to reveal the acceptable shared culture and obscure individual differences.

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Notes

1. The ILO found that, during the 1990s, average annual American work hours increased by 36 hours. Reich's (2000) analysis of 1999 data from the U.S. Department of Labor's *Report on the American Workforce* provides further empirical support. Reich found that depending on the method of calculation, average annual work hours increased from 1979 to 1999 by either 71 hours or 142 hours. Robinson and Godbey's (1997) time-diary study claims that free time actually increased from 1965 to 1985. However, these findings have been criticized by numerous researchers who point out that Robinson and Godbey's sample was small and unrepresentative, consisting only of individuals with enough time on their hands to keep such diaries (Hochschild, 2001; Reich, 2000). Moreover, even if one is convinced by Robinson and Godbey's claims regarding *overall* average work hours up through the mid-1980s, this does not contradict the ILO's findings regarding the general increase in American work hours during the 1990s, and the fact that work hours of professional, technical and managerial workers, on which this paper focuses, have increased over the past 30 years remains undisputed.

2. Among men, 35% of professional, managerial, and technical employees work more than 50 hours a week, but only 20% of those in other occupations work such hours. For women, 17% of professional, managerial, and technical employees work more than 50 hours per week, as compared to 7% for women in other occupations (Jacobs and Gerson, 1998). More generally, CPS data show that the percentage of employees working more than 50 hours per week increases for employees earning higher incomes (Rones, Ilg, and Gardner, 1997).

3. The dearth of modern sociological research on this question is also perplexing in light of vigorous debate over the determinants of the length of the workday in the canonical texts of sociology, from Marx's materialist explanation in *Capital,* focusing on the inherent dynamics of capitalism and workers' economic dependence on employers, to Weber's *Protestant Ethic and the Spirit of Capitalism*, positing a cultural genesis for long work hours in the subjectively held religious beliefs that spread after the Protestant Reformation, and finally Durkheim's *Division of Labor,* theorizing that hard work naturally flows from workers' understanding of how their specific tasks constitute an essential part of a greater collective effort.

4. Technical workers are projected to be the fastest growing occupational group from 1990 to 2005 (Silvestri and Lukasiewicz, 1991).

5. In a study of another large high-tech firm, Leslie Perlow (1996, p.3) found that while work hours are officially "flexible," career success in fact requires the engineers to "demonstrate unlimited devotion and energy to work." Perlow's observations are generally consistent with my findings, but Perlow does not explore *how* the firm manages to both profess flexibility and simultaneously push its engineers to wholly devote themselves to work. Sean O'Riain's (2000, pp. 176-179) ethnographic research on the work lives of Irish software developers emphasizes the use of the "project deadline" as a management technique to control engineers and induce long work hours. O'Riain, however, does not discuss why the engineers consent to tight deadlines. This paper contributes to the high-tech work literature by examining the management techniques by which software engineers come not only consent to, but in many cases self-impose, tight deadlines.

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6. Work at Allied met all four conditions. The factory workers exercised discretion in how they operated their machines. For example, they could speed up production at the risk of having their pieces disqualified by the quality control inspector. Such decisions directly affected the number of pieces they produced per hour, an outcome that was both clear and ex-ante uncertain. The results were also extremely significant because, as Burawoy (1979, pp. 88-89) explained, to be "anyone" on the shop floor, one "better begin making out" or face being the object "of scorn and derision" and "be ostracized." (Burawoy, 1979, pp. 88-89).

7. The fun collegiate image is further cultivated at the "MegaTech museum," a private facility used for official company events, including the orientation of new recruits. Although the museum "displays" focus mostly on MegaTech's technological achievements, several panels provide quotes and video clips from employees who emphasize MegaTech's "playful" social atmosphere. A movie that repeats every five minutes asserts that "people have fun here. It's like being in college; the office is like the dorm room."

8. As one employee described it, "Everything happens through e-mail; it's hard to take it out of e-mail and talk personally." E-mail is preferred to face-to-face contact because it allows the other person to respond when he or she has time. According to several engineers, another purported advantage of e-mail is that "you can be more terse and direct, and in giving criticism, there is less need to soften the blow."

9. One engineer described the environment as follows:

> You definitely need to have thick skin to work here because it can be kind of a hard working environment; it's not unusual to be at a meeting where people are yelling at each other; it happens all the time. . . . Someone who used to work here wrote an article about how refreshing it was at her new job that people chat at the water cooler while here people go to their office and immediately close their door. She also wrote about how on her first day at MegaTech she introduced herself to someone in the kitchen who responded with the question, "Do I need to know you?"

10. The engineers interviewed by Kunda ambivalently embraced a "member role" in which they viewed themselves as part of a collectivity to which they felt loyalty and sometimes love. Kunda (1992, pp. 50-52, 171-174, 194) quotes employees as saying "I'll never leave Tech, I'm a Techie" or "I just love this company; I would die for it." By contrast, MegaTech engineers articulated a variety of utilitarian reasons for staying at MegaTech, such as the opportunity to do interesting work or the acquisition of valuable skills, but no engineer described a personal or emotional identification with MegaTech. Further reflecting this attitude, and in contrast to Kunda's observations of employee cars and offices with role-embracing "I love Tech" bumper stickers and posters, MegaTech's parking lots and offices were conspicuously lacking any such cultural artifacts. The engineers' lack of emotional commitment matched MegaTech's lack of effort to instill this sort of connection. There was no systematic dissemination of cultural messages, whether through seminars, speeches, or bulletin boards. MegaTech's most conscious attempt at self-presentation and cultural dissemination—the MegaTech museum—while trying to

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convey the image of MegaTech as "fun," contained no references to or metaphors about MegaTech being a family or a caring community.

11. Given the hype surrounding "stock options" in the late 1990s, my interviews also included questions about their motivating role, which I expected to be significant. In fact, although stock options played an important role in some engineers' decision to join MegaTech, and for some it remains an important reason to stay (at least until the options "vest," i.e., become available for cashing-out), the engineers consistently stated that the options do not affect their day-to-day work lives.

12. The "classic" book on the passion of coding is Tracy Kidder's *The Soul of a New Machine*, depicting work at IBM in the early 1980s. Engineers are described as deeply absorbed in programming, which for them is "like a drug," and programming is compared to playing in a "jungle gym" (Kidder, 1981, pp. 96, 102).

13. The engineers' sentiment appears to be shared by most Americans who work more than 50 hours a week. Based on 3,381 phone interviews of working-aged adults, the *National Study of the Changing Workforce* found that 80% of those working over 50 hours a per week preferred working shorter hours (Jacobs and Gerson, 1998).

14. Vicki Smith's (1990, p.93) case study of a large banking firm, conducted in the mid-1980s, discusses how middle managers were required to use "ranking procedures to place employees on a normal curve" in order to "identify poor performers" who would be "managed out." Perlow (1996, p.40) also alludes to the existence of annual performance reviews that appear similar to MegaTech's, noting that each year managers "rank the software engineers." Self-management practice are even more widespread. Surveying the literature, Smith (1997) estimated that 35% of large firms deploy some form of "flexible work organization" that involves employee participation in traditional managerial realms.

15. On March 19, 2001, a front page story in the *New York Times* described the technique of grading employees on a bell curve as increasingly popular and cited several large American corporations that recently adopted this practice, including Ford Motor Company and General Electric. In addition, Nissho Iwai Corporation, one of Japan's largest trading houses, and the fifteenth largest company in the world also adopted curved grading in 2001.

16. However, even engineers who receive a 2 or 2.5 are rarely fired. The consensus was that "to get fired, you have to really screw up," and not in terms of performance, but by committing an "HR violation or leaking private information." Much more common than being fired, engineers quit after receiving bad performance reviews because they feel that they are not wanted or appreciated. This system allows MegaTech to promise job security to new recruits while pressuring low performers to quit.

17. My findings regarding the importance of "visibility" are remarkably similar to what Perlow (1996, p.34) observed in another large high-tech firm: "success requires not only that [the

engineers] complete their own code but that their code be considered high visibility," which means that "managers consider it crucial to their own success."

18. The review scores also have financial implications. Higher scores entail larger pay raises, bonuses, and stock options. For example, engineers obtaining a 3 or less do not receive any stock options. Yet, as previously discussed, the scores were not significant because of money; on the contrary, money was significant as another kind of score, providing validation to the engineers of their competence and worth.

19. Several engineers emphasized that besides the review process, there were no other serious sources of recognition for their ability and contribution. According to one engineer, compared to other places he has worked, "where the management may tell you 'great job,' here it really doesn't happen that much; it all comes in the review." Other forms of recognition such as plaques are viewed as trivial or silly. When a product is shipped, engineers receive a plaque with an "inspiring message from the CEO," and after five years at the company, engineers receive a clock. One engineer commented that "we are all jaded" and described these tokens of recognition as "kind of a joke and not really heartfelt." These were variously referred to as "dorky" or "annoying."

20. According to Weber (1998, pp. 112), because Calvinists could not attain certainty about their status as elect or damned, they engaged in intense "worldly activity" to counteract their "feelings of religious anxiety." Catholics could obtain "release from that tremendous tension to which the Calvinist was doomed by an inexorable fate" through confession and atonement. The Calvinist, by contrast, "could not hope to atone for hours of weakness or of thoughtlessness by increased good will at other times. . . The God of Calvinism demanded of his believers not single good works, but a life of good works combined into a unified system. There was no place for the very human cycle of sin, repentance, atonement, release, followed by renewed sin" (p. 117). I am indebted to Michael Burawoy for pointing out the similarity between Weber's Catholics and Allied's workers to me.

21. Expressing a typical attitude, one engineer stated, "You need to be able to quantify what you do, and you need to be able to see where you are at, how are you doing? Compared to everybody else, how are you doing? I think that's a really valuable thing to know."

22. Two non-merit or "political" factors were acknowledged. First, following a promotion to a new level it is an unwritten convention that managers give the newly promoted engineer a lower score regardless of his or her relative performance. By giving "newcomers" a lower score, managers are able to boost the score of others who have been at their level for a while and nudge them toward moving up a level. The other non-merit basis involved the ranking of employees who were in the process of transferring to another product division. The transferring engineer's last score in the old division is bound to be low regardless of actual performance. The engineers explained that managers have no incentive to give departing engineers a high (or even average) score which, give the bell-shaped distribution of scores, necessitates giving someone else—who will continue to work in the unit—a potentially demoralizing low score.

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23. Nick was the only engineer I interviewed who explicitly criticized and was de-motivated by the review system. Perhaps not surprisingly, he had received a low score. Nick was openly bitter and was seriously considering interviewing with other companies. He attributed his low review score to having "an extremely poor manager," who "did not give me good feedback and therefore I wasn't giving him what he wanted, though I thought I was." He also thought that managers are not telling him "the truth about the review criteria." Although Nick was clearly demoralized and appeared on his way out, his criticism did not question the fairness of the system, but only its unfair application by an incompetent and perhaps less than honest supervisor. Moreover, Nick's departure would not necessarily be a bad result from MegaTech's perspective because the review system aims to motivate the "good" engineers and to nudge out those who are deemed to be relatively low performers.

24. The engineers' acceptance of competitive peer ranking diverges from Smith's findings. In discussing the deployment of normal ranking curves for engineers at the high-technology division of an American bank, Smith (1990, p.129) reports that low level managers resisted this practice. According to Smith, the managers feared that the engineers would be demoralized by low rankings and leave the bank for other companies. I hypothesize that this problem did not arise at MegaTech because the practice of self-management led the engineers to generally blame themselves when they received low scores. The lack of resistance at MegaTech may also be attributable to the fact that internal competition leads to individualization and dispersion of conflict. As Burawoy (1979) theorizes regarding Allied, competition may contribute to the redistribution and dispersion of conflict. Like Allied, the MegaTech "system of rewards is based on individual rather than collective effort" (p.81). At both places, the structure of the rules led to "lateral" and not vertical "antagonisms," at Allied between production and auxiliary workers and at MegaTech among the competing engineers themselves (p.67).

25. The engineers also had incentive to give themselves a low score. Engineers who gave themselves scores higher than the manager thought appropriate were advised by their manager to not give themselves such high scores because this requires the manager to write up the review in a way that "defends" the lower score, emphasizing the engineers' weak points. To avoid such a negative emphasis in the review, it is safer for engineers to give themselves a modest or average review score. Yet, it rarely happens that engineer get a higher score than they give themselves. Thus, on the one hand, engineers are encouraged not to give themselves a high score because this may lead to a more negative review, but on the other hand, by keeping their own scores low, they are foreclosing any objections to receiving a mediocre or low score.

26. This analogy raises the speculative possibility that Burawoy's theory for understanding workplace behavior may provide a fruitful lens for understanding American workers' general consent to, and often enthusiastic participation in, the capitalist mode of economic organization.

27. Reich (2000, p.100) observed that for "new economy" workers "there is no coasting, no cruising altitude" and "work requires continuing effort." In the old economy, and particularly during the 1950s and 1960s era of the "organization man" and stronger labor unions, there was a "social contract" where in return for reliable work, employees were assured of job security and steady wage gains. As Reich describes it, during this period, "men went about their work with no

particular urgency," and both blue and white-collar workers were "expected to put in no more than a fixed amount of work time beginning and ending on a fixed schedule" (pp. 71, 95). By contrast, in the "new economy"—as at MegaTech—Reich describes workers as individual "sellers of services" who can "never reach a point where [they] can relax" because any success "will only be temporary," with competitor sellers "sure to follow quickly" (p.35).

28. This hypothesis is supported by comparing MegaTech to the high-tech firm investigated by Kunda (1992). When Kunda's firm attempted to go *against the grain* of the competitive and individualistic ethos of the new economy and "engineer" worker identity with the company as one family, it produced ambivalence among its engineers. The engineers felt torn between their sense of autonomy and the cultural claims of the company. They wavered between a cynical "distancing" attitude and "role embracement." By comparison, because MegaTech's competitive self-management is harmonious with larger economic-social structures, it is experienced by the engineers as natural and normal, and does not conflict with their sense of autonomy. Further research could test this hypothesis. For example, American worker responses to competitive self-management could be compared to the responses to an identical management system among workers in a more collectivist culture or where the larger economy operates by different rules, such as in the Scandinavian "welfare state." In the latter case, my hypothesis would predict more resistance among the workers.

29. This critique is not original. As Heidi Gottried (2001, p. 436) recently noted, since the publication of *Manufacturing Consent* "many" have criticized Burawoy's "marginalizing the influence of external factors such as culture, race, gender and social institutions (school, media, and family) in conditioning the organization of the labor process."

30. Externally produced consciousness is necessary to explain why Allied's and MegaTech's "games" powerfully absorb workers or, in other words, why the outcomes of the games deeply matter. At both workplaces, the outcomes are important because they reflect competence in one's work, and competence is a crucial prerequisite for workers' status among their peers. If workers evaluated each other's worth by other criteria (e.g., loyalty, friendliness), less would be at stake and the game would lose much of its pull. The anxiety experienced by MegaTech engineers arises from the combination of the engineers' desire to be recognized as competent and the system of competitive self-management that makes recognition for competence scarce and uncertain. Yet, the importance of competence at one's work is not "produced" at the workplace. Burawoy's claim that workers' consent is produced by their active participation in a workplace game requires reconstruction. Consent is not produced by workplace organization alone, but by the workers' imported consciousness (such as their concern about relative competence) intersecting with a workplace organization in a manner that generates a game with uncertain but important outcomes.

31. This finding confirms the existing literature. Hochschild's (1997, pp. 8, 25) "Amerco" also provided a wide range of options for "flexibility" in work hours, including part-time, flextime, and job sharing. Although "the company offered [the workers] policies that would allow them to cut back…almost no one cut back." The company researched by Perlow (1996, p.104) was likewise one of *Fortune* magazine's "100 Best Companies To Work For," and it offered "a wide

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array of flexible options, including flextime, flexplace, job sharing, and part-time work." Yet, as at MegaTech, most engineers did not use such options.

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References

Burawoy, Michael, *Manufacturing Consent*. Chicago: University of Chicago Press, 1979.

Golden, Lonnie, and Jorgensen, Helene, "Time After Time: Mandatory Overtime in the U.S. Economy," *EPI Briefing Paper*, January, 2002.

Gottried, Heidi, "Manufacturing Consent to Global Ethnography: A Retrospective Examination," *Contemporary Sociology*, Volume 30, pp. 435-438, September, 2001.

Hochschild, Arlie, *The Time Bind.* New York: Metropolitan Books, 1997.

------------------, Overwork: Causes and Consequences of Rising Work Hours, Roundtable Discussion with Arlie Hochschild, Neil Fligstein, Kim Voss and Juliet Schor, Moderated by Michael Burawoy, *Berkeley Journal of Sociology,* Volume 45, pp. 180-196, 2001.

International Labor Organization, "Key Indicators of the Labour Market, 1999," September, 1999.

Jacobs, Jerry, and Gerson, Kathleen, "Who Are the Overworked Americans?" *Review of Social Economy*, volume 56, p. 442, 1998.

Kidder, Tracy, *The Soul of a New Machine*. Boston: Little Brown, 1981.

Kunda, Gideon, *Engineering Culture: Control and Commitment in a High-Tech Corporation*. Philadelphia: Temple University Press, 1992.

Leidner, Robin, "Manufacturing Consent Reexamined," *Contemporary Sociology*, Volume 30, pp. 439-442, September, 2001.

O'Riain, Sean, "Net-Working for a Living: Irish Software Developers in the Global Workforce" pp. 175-202 in *Global Ethnography: Forces, Connections, and Imaginations in a Postmodern World,* edited by Michael Burawoy et. al. Berkeley: University of California Press, 2000.

Osterman, Paul, *Securing Prosperity*. Princeton, NJ: Princeton University Books, 1999.

Perlow, Leslie, *Finding Time: How Corporations, Individuals and Families Can Benefit from New Work Practices.* Ithaca, NY: Cornell University Press, 1996.

Pierce, L. Jennifer, "Manufacturing Consent in the 'New" Global Economy,' *Contemporary Sociology*, Volume 30, pp. 445-446, September, 2001.

Putnam, Robert, *Bowling Alone: The Collapse and Renewal of American Community*. New York: Simon & Schuster, 2000.

Reich, Robert, *The Future of Success*. New York: Knoff, 2000.

Robinson, J. and Godbey G., *Time for Life*. State College: Pennsylvania State University Press, 1997.

Rones, Philip, Ilg, Randy, Gardner, Jennifer, "Trends in Hours of Work Since the Mid 1970's" *Monthly Labor Review*, volume 120, pp. 3-14, April, 1997.

Schor, Juliet, *The Overworked American: The Unexpected Decline of Leisure*. New York: Basic Books, 1991.

Silvestri, George, and Lukasiewicz, John, "Occupational Employment Projections," *Monthly Labor Review,* Volume 114, pp. 64-94, November, 1991.

Smith, Vicki, *Managing in the Corporate Interest: Control and Resistance in an American Bank.* Berkeley: University of California Press, 1990.

-------------, "New Forms of Work Organization," *Annual Review of Sociology*, volume 23, pp. 315-339, 1997.

.

Weber, Max, *The Protestant Ethic & the Spirit of Capitalism.* Los Angeles: Roxbury Publishing
      Company, 1998.

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