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16. Abstract <p>The five-day workweek has been the commonly accepted "standard workweek" for many years. Until recently it had been the unchallenged foundation and cornerstone of work scheduling. It has seemed almost subversive or somehow absurd to suggest that another work schedule might be more productive. However, due to the recent emergence of the four-day workweek and several other new work-time arrangements, the standard five-days, 40-hours can no longer be considered inviolable.</p> <p>One way to classify the various scheduling techniques which have been devised is with regard to the degree of flexibility found in each. Four categories have been defined: fixed, staggered, flexible and variable. Fixed and staggered hours do not change once established; flexible and variable hours can change from day to day.</p> <p>It is significant that employers and employees no longer have to be bound by tradition to one previously established work schedule. The schedule can now be tailored to fit the needs of the organization.</p>					
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AN ANALYSIS OF VARIOUS WORK-TIME  
SCHEDULING METHODS

by

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in cooperation with

U.S. Department of Transportation  
Federal Highway Administration

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## SUMMARY

Much of the current work force has grown up during a period in which the most prevalent work schedule has been the eight-to-five, 5-day workweek. However, the standard eight-to-five has not always dominated. It first appeared in the United States in 1908, and only five percent of the labor force had converted to the 5-day schedule by 1929. It is a work schedule which, for the most part, evolved out of the Depression and World War II, influenced by labor organizations and legislation.

The 5-day workweek seemed almost inviolable for a number of years; but recently many new and different schedules have been designed to better fit the needs of organizations. One way to categorize the various schedules (for ease of understanding and perspective) is with regard to the degree of flexibility found in each. Four groups have been defined to encompass the spectrum of flexibility from the most rigid schedule to the least structured. They are the Fixed system, Staggered system, Flexible system, and Variable system.

Flexibility does not necessarily equate with desirability. A loosening of the constraints of tradition along with the advent of several different work schedules has now made it possible to choose the most appropriate system for the organization's needs, whether that choice is for a more flexible schedule, a less flexible schedule, or the same schedule.

Almost all of the new schedules specify that the same amount of time will be worked as was worked under the standard schedule; and pay neither increases nor decreases. So, the currently accepted work-ethic is not violated by demanding more work for less pay nor more pay for less work.

Some of the various work time schedules have been characterized as tools of management since they are almost always initiated by management. And it is true that increased production is often achieved by converting to a different work schedule - but not at the expense of the employees. Workers frequently find that the new schedules are more appropriate for their needs, both on the job and off.

A schedule which better fits employees' needs will improve morale and therefore production; but a schedule which is also better suited for the execution of the work function optimizes production. Company administrators and civil servants alike have reported that conversion to a more suitable schedule resulted in such benefits as: reduced absenteeism, reduced employee turnover, increased incentive, enhanced recruitment capabilities, more efficient utilization of equipment, less wasted effort, reduced overtime work, decreased production costs, improved throughput, reduced traffic congestion, reduced fuel consumption, increased service day/week to the public, more usable leisure time, enhanced esprit de corps, etc.

It is difficult, if not impossible, to characterize any tried and true schedule as inherently good or inherently bad. In other words,

it is rather futile to denounce any proven schedule in a general sense just because it would be inappropriate for one specific application. The systems and schedules which are discussed herein have been proven valid numerous times; specific applications must each be judged carefully, systematically, and logically.

## INTRODUCTION

The 4-day workweek and other alternate work-time schedules have been touted as the solutions to many problems, from conserving fossil fuels and reducing traffic congestion to decreasing unemployment. Some of the brags about the various scheduling techniques are generally true while some are true only for special situations.

Just as significant, many (and possibly most) of the preconceived notions about these new scheduling techniques are false. The objections which are quickest and most often vocalized are, for the most part, either based on misconception or have been disproven time and time again by companies which have adopted new scheduling techniques.

This report is based on one telephone interview and a literature search of 33 books, reports, and articles. A preponderance of the information obtained deals with the relatively unfamiliar 4-day and flexible workweeks. However, for the sake of perspective and categorization, the more familiar 5-day (8:00 a.m. - 5:00 p.m.) and staggered schedules are briefly discussed. It is hoped that this report will be of some benefit in exposing the facts concerning the various alternate work scheduling techniques.

## BACKGROUND

The standard workweek has not always been so clearly defined, nor has it always been five-days, forty-hours. Early in our history many people felt that "six days of labor, one day of rest" was a biblical precept which they should follow; and 10 to 12 hour days were fairly common. Though statistics are sketchy, available information indicates that 66 and 72 hour weeks were prevalent around 1850 when reduction of the hours of work began.

Hours remained relatively constant during the 1870's and then began dropping again, especially after 1885. The 60-hour week was well established by 1890 with 54 and 48 hours in many building trades. At about the turn of the century there was a decided shift down in hours worked. Further reductions continued through 1921 when a low was reached that was not surpassed again until 1930. By 1920, the 48 hour week prevailed for many groups, with the building and printing trades on 44 hours. In the 1920's hours were stable at 44 to 48 hours. In the depression actual hours worked were greatly reduced. Recovery brought most weekly hours up to 40 by 1940. During the war, longer hours were worked. But since 1946 hours worked have again been stable, largely at 40 per week.<sup>1</sup>

So it is clear that major economic changes such as depressions and major events such as wars have affected the number of hours worked. Stemming from fear of demobilization unemployment after the Civil War, Congress reduced hours of work with the passage of an 8-hour law (in 1868) for "all laborers, workmen and mechanics . . . employed by, or on behalf of, the government of the United States."<sup>2</sup> Sporadic but persistent efforts to reduce the length of the workweek were successful in time, and bricklayers in California worked a 48-hour week as early as 1870.<sup>3</sup>

The first known 5-day week appeared in the United States as recently as 1908, and was unique for several years. A decade later, in 1918, there were only a handful of 5-day firms. And in 1929 only 5% of the American labor force was on 5-day.<sup>4</sup>

The great depression greatly reduced the hours of work, reaching a low of 34.6 in 1934. Building construction was down to 28.9 hours per week in 1934, and bituminous coal miners reached a low of 23.5 hours per week in 1938.

This was the time when the 5-day week really got under way - primarily an invention of management. When prices were dropping and production schedules were being cut, the 5-day workweek (without a cut in hourly wages) seemed to be the solution, but conditions worsened. Congress stepped in, almost at the bottom of the depression, and passed the Fair Labor Standards Act.

Known as the Wage-Hour Law, this act required payment of time-and-a-half for any time worked over 40 hours in a given week. Thus, it gave additional impetus to the 5-day workweek. Many states enacted laws to the same effect, and the Walsh-Healey Act was passed which required time-and-a-half pay for over eight hours of work per day on government contracts.<sup>5</sup> Hence, the 8-hour day came into being for many workers.

More recent efforts to further reduce the workweek have been thwarted by both Presidents Kennedy and Johnson. They rejected proposals for a 5-day, 35-hour workweek as counterproductive. However, relatively recent experimental changes to the standard workweek have produced many customized work schedules which better meet companies' needs and employees' needs also. Production conscious managers, cost conscious administrators and

service minded public employees have begun to custom design work schedules to the mutual benefit of employer and employee. Not only are these variations not counterproductive, they are designed and redesigned to optimize production. Usually the total number of hours worked remains the same, but if the hours are reduced, it is because increased efficiency permits the same (and often more) output in less time.

## THE MAIN TYPES OF SYSTEMS

One way to categorize or classify the various scheduling techniques is with regard to the degree of flexibility or freedom found in each. Elbing, Gadon and Gordon, in Flexible Working Hours: It's About Time, state, "In general, one can speak about fixed, staggered, flexible, or variable working hours. This hierarchy represents an increasing level of flexibility in working-hour arrangements between employees and employers: fixed and staggered hours do not change once established; flexible and variable hours can change from day to day."<sup>6</sup> Within these four general categories, there exists many variations with which administrators and employees can custom design work schedules to fit their needs, both on the job and off.

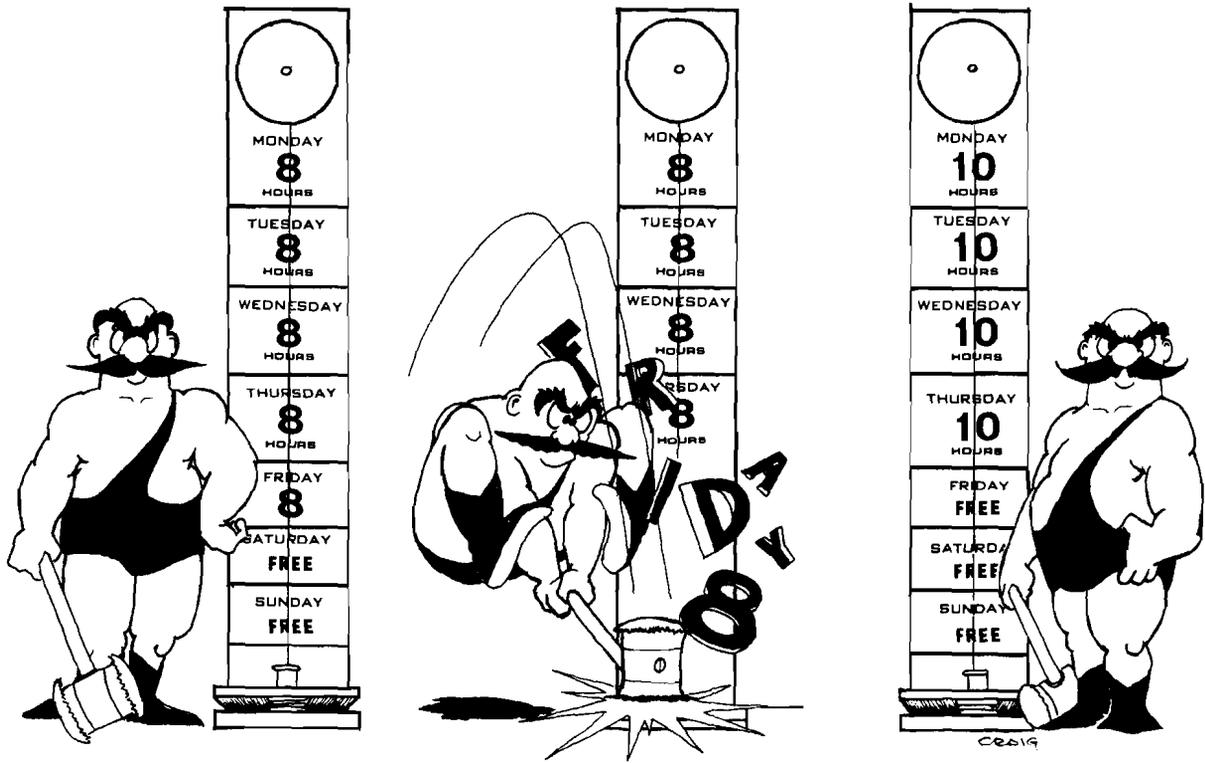
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**SYSTEMS**

## FIXED SYSTEM

The standard 5-day, 40-hour workweek falls in the Fixed category. It is a rigid system which has been rough-hewn by the powerful forces of depression and war instead of being carefully designed for specific applications. Though the standard 5-day, 40-hour workweek might be ideal in some applications, one should realize that it is not universally applicable, nor is it sacred.

The compressed workweek, which also falls into the Fixed category, is any arrangement of work days and hours scheduled by an organization whereby one or more groups of employees fulfill the work commitment in fewer than the standard number of work days. Once the hours are established, they are maintained just like the 5-day week. The compressed workweek (also called the truncated workweek) includes such variations as the 4½-day week, the 4-day week and even a 3-day week. Of these the 4-day week is by far the most widely used.

The 4-day workweek is merely a specific type of compressed workweek: fulfilling the week's work commitment (usually 40 hours) in 4 days. This is accomplished by working 10-hour days instead of 8-hour days. The 4-day week does not mean working less time, because the total number of hours worked remains the same. It does not necessarily mean that the company nor office is closed more days per week. It does not result in a cut in pay, vacation, sick leave nor other benefits. It does not mean an increase nor decrease in hourly wage rates. It is just another technique for work scheduling which might better fit the needs of the people involved.



Many variations are available such as: (1) working Monday through Friday with the additional day off rotated sequentially through each day (Tuesday, Wednesday, Thursday, Friday would be the first workweek / Monday, Wednesday, Thursday, Friday would be the second workweek / Monday

Tuesday, Thursday, Friday for the third workweek / etc.); (2) work Monday through Friday with the same day off every week (usually Monday or Friday); (3) work Monday through Friday with the day off rotated through Monday - Wednesday - Friday; (4) work Monday through Friday with the day off being Monday and Friday alternately. Some companies have two shifts per day. Some incorporate Saturday or Sunday into the schedule. So, it is obvious that the "custom fit" capabilities of such a system are almost endless.

In general the office which has people on a 4-day schedule may or may not be closed on the day off, depending on the type of work and needs of the people. However, some offices must be open 5 days per week, so the scheduling techniques would apply to individuals rather than to an entire office. An office of twenty people, for example, might have ten people working Monday through Thursday, 10 hours per day and ten people working Tuesday through Friday, 10 hours per day. The office would not only be open five days per week, it would also be open two extra hours per day (or 1½ hours if the lunch period were reduced 30 minutes).

It is seldom mandatory for the entire group to convert to the 4-day schedule. Some individuals might find that their functions and needs could best be served by continuing their old schedules. Perhaps eight people would work Monday through Thursday, nine people Tuesday through Friday and three would continue working Monday through Friday as usual. The point is, the compressed workweek provides a degree of flexibility with which managers and administrators can customize in order to optimize.

A significant number of companies began converting to the 4-day week in the early 1970's. The Wall Street Journal reported an estimated forty 4-day companies in the U.S. in 1970 and approximately 3,000 in 1973. However, a few companies had gone to a 4-day schedule years before. "... drivers of fuel oil and gasoline delivery trucks at most of the major oil companies have been on 4-day scheduling for the past 30 years."<sup>7</sup>

The administrative heads of Texas State agencies have had the legal authority to adopt a 4-day schedule since 1972. Attorney General Crawford Martin issued Opinion No. M-1058 which states:

State employees are required by law to work a minimum forty hour week, but in situations where the administrative head of the agency deems that efficient operation of the agency will be aided thereby he may assign certain personnel to a ten hour day, four day work week.

For many the 4-day week concept is not as strange and unusual as it might seem at first. Since 1971 practically all U.S. business, government, and industry have been operating on a kind of 4-day schedule for more than 10% of the year. The federal law which specifies six Monday holidays provides a total of about eight long (three-day) weekends per year. The difference between this and a compressed workweek, of course, is the length of the workday.

Much has been said and written about the 4-day workweek because of its many successes and because it represents the first major breach of the system which many people felt was immutable; but it has generated interest (and possibly excitement) because it offers a number of advantages to both employees and employers. The advantages are not easily categorized because a benefit to employees will almost certainly result in benefits to the whole organization.

One of the foremost benefits is the extra day off. It is usually scheduled on either Friday or Monday, providing a three-day weekend every week. It affords the employee business interactions with organizations which are not usually open on Saturday or Sunday. It makes weekend trips more feasible and less rushed. It is a day which can be spent leisurely, on hobbies, or moonlighting. For some it becomes the housecleaning day, freeing Saturday and Sunday to spend with the children; and according to Riva Poor, "The extra morning in bed may explain why people say four-day is good for marriage, morale and so on. It certainly explains why not one four-day couple with children on a five-day schedule complains about the disparity." Mr. Albert Lewis of the C. A. Norgren Company said (with apologies to Ms. Gloria Steinem, Germaine Greer and Betty Friedan), "Working women think it's the greatest thing since the double bed."<sup>8</sup>

Morale improves so absenteeism diminishes, employee turnover is reduced, and there is increased incentive. The three days off are considered a fringe benefit so the organization becomes more attractive to prospective employees. Administrators of 4-day companies frequently express the belief that they are able to hire more top-notch people because of the additional benefit of a three-day weekend every week.

Something which is closely related to employee morale and which has been a subject of concern to some American sociologists during the past 15 years is the so-called "alienated worker." The worker who performs tasks extraneous to himself-not personal to him-not part of his nature-does not fulfill himself in his work. He actually denies himself and feels dissatisfied rather than content. James L. Steele and Riva Poor wrote in 4 Days, 40 Hours:

. . . the results of our study suggest that workers on the 4-day workweek may be less alienated from their jobs than 5-day workers. We make a distinction here between job alienation and work alienation. It is possible for a worker to be alienated from work, to view it as a necessary evil in life, to find no sense of achievement or satisfaction through it, and yet to be strongly committed to his job. This is exactly the impression we gained about many workers on the 4-day workweek. It seemed clear that some feel a sense of alienation about work generally. But trade their 4-day job for a 5-day job? Not on your life! Alienated from work they may be; but alienated from their 4-day job or 4-day company they certainly are not! <sup>9</sup>

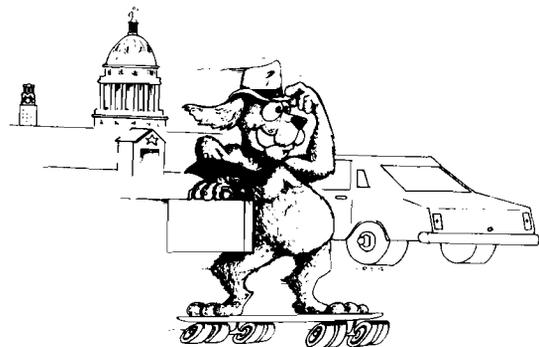
Well documented before and after statistics frequently confirm a significant increase in production, and 4-day managers claim the increase is permanent, not just a temporary reaction to going on a new system. This is likely the result of better utilization of equipment (10 hours per day instead of 8 hours), fewer start-ups and shutdowns to job completion, and less travel time spent going to the job site. Mr. Albert Lewis explained that ". . . when you lengthen the increment of work time by not breaking as frequently, you allow the employee to work at his own pace and sustain the rhythm for a longer span. Shorter intervals of work tend to disrupt this rhythmic flow as workers take longer to recover after each break." <sup>10</sup>

With the increased work efficiency come reduced overtime costs, decreased production costs, improved throughput, etc. Some organizations have found that they can reduce the total hours of work and still meet production requirements.

In some cases the extra day might be used for equipment maintenance while in others, it could provide a full day of overtime if the workload

warranted it. Mr. Jim Widmer of Sweet Publishing Company at Round Rock, Texas reported that members of his 3-day week crews were happy to work overtime whenever needed. <sup>11</sup>

Conversion to a 4-day schedule might have a beneficial effect on traffic congestion. The total number of trips to and from work is reduced (approximately 20% for 4-day employees); and the trips into an area such as a central business district are spread over a greater range of time, thus reducing and possibly shifting the peak demand. Traffic movement is enhanced so trip times and fuel consumption are reduced.



Another advantage to the 4-day workweek which service organizations should be aware of is the capability of offering their services two additional hours per day. The city of Minnetonka, a suburb of Minneapolis, realized the need to provide services at times other than standard business hours. Their city hall is not located in the central business district so it was very difficult for working people to use their services. The city manager recommended to the city council a 4/40 plan for city employees and a 50 hour service week to the community.

The plan provided for a workday from 7:00 a.m. to 5:30 p.m. so the citizens could conduct business before and after standard working hours. The employees were allowed to choose either Monday or Friday as their day off, giving them a three-day weekend every week; and improved efficiency was expected to result from more systematic use of office equipment.<sup>12</sup>

In Austin, Texas Justice of the Peace Jon Wisser put two of his employees on a 4-day week. Peace Justice Wisser said his employees were "very much in favor" of the new schedule and that he did it because of an increasing workload. It is difficult to file and type during the day with people coming in, but the 7:00 a.m. to 6:00 p.m. shift allows his staff to get more done and better serve the public. He said, "I feel this office and all public offices should be open longer."<sup>13</sup>

The South Dakota Department of Transportation put their maintenance field crews on a 4-day schedule from May 3, 1976, to September 23, 1976. Their objective in doing so was to effect an overall savings through increased productivity, reduced unit costs, reduced nonproductive time,

reduced subsistence payments, reduced equipment usage, and increased energy conservation. Work output and costs data for two periods (May 2, 1975 through September 19, 1975 and April 30, 1976 through September 17, 1976) were selected for comparison because computer output reports for these periods were readily available. Based on this comparison it was concluded that:

Decreased subsistence payments accounted for a direct savings of \$25,500.

Decreased truck usage amounted to about \$41,000 of savings along with somewhere around 27,000 gallons of fuel savings.

It appears that somewhere between 5% and 10% more work was accomplished during the 1976 period, with the same number of man-hours and total costs as were charged during the 1975 period.

Based on these findings, it would appear that 10-hour days should again be scheduled during the 1977 summer months.<sup>14</sup>

State Department of Highways and Public Transportation District Engineer Bob Schleider (Wichita Falls, Texas) initiated a trial 4-day week schedule in his Throckmorton maintenance section. The scheduled workday began at 7:00 a.m. and ended at 5:30 p.m. with two 15-minute breaks and 30 minutes off for lunch. They got more work done.

Maintenance foreman Gerald Cook said: "I can see a difference. My men are happier and they are getting more work done with less money. Why, a lot of times we would have to come in when we only needed another hour or so to finish a job. On the 10-hour day, we'd just go ahead and finish and start another job the next morning instead of having to go back out there."

Mr. Cook says the good points far exceed the few problems connected with the test program and he enumerated the following advantages:

Signs and cones can be set out before traffic becomes a problem. By the time traffic builds up the crew can be working safely.

The extra two hours each day allows them to finish the work they are doing for a savings in gasoline, equipment wear and travel time; and ultimately, money.

They save about 15 to 20 minutes per person per week in filling out time sheets and equipment sheets.

Thirty minutes per person per week is saved because two 15-minute breaks are eliminated.

The men like the 4-day schedule because it gives them time to go to the bank, to see the doctor, to take out-of-town trips and things like that.

The men save money on gasoline and car wear because there are 20% fewer trips to work.

Local citizens have commented that they can tell the crew is getting more work done on the 4-day schedule than they did on the 5-day schedule.

Mr. Cook had one man working Tuesday through Friday to help him cover emergency work. The secretary worked the standard 5-day, 40-hour schedule.<sup>15</sup>

## QUESTIONS ABOUT THE COMPRESSED WORKWEEK

QUESTION - Reshaping a standard workweek into a compressed workweek (4-day, 3-day, etc.) dictates a longer workday of ten or more hours. Won't the longer work period be too fatiguing?

ANSWER - This question is usually foremost in the minds of employees who are pondering conversion to a compressed workweek; and it is undeniable that ten hours of work are more tiring than eight. However, workers become conditioned to the length of the workday whether it is eight hours long or ten hours long. They go through an adjustment period (usually a couple of weeks) during which they reform their concept of the workday and condition themselves physically and mentally to meet the demands of the longer day. Very few people find the longer day significantly more tiring, and there are three days in which to rest instead of two.

Mr. Jim Widmer of Sweet Publishing Company reported that after their 90-day trial period with the 3-day workweek, only one person felt that the hours were too long. The others not only adjusted to the 13½ hour workday, they preferred the 3-day week to the 5-day week! He said that workers who are promoted into other departments which are on a 5/40 schedule express a desire to return to the compressed schedule.

QUESTION - Won't production decrease during the latter hours of the day?

ANSWER - No doubt the last two hours of a 10-hour day are not generally the most productive hours; but overall, production usually increases with

adoption of a 4-day workweek.

QUESTION - But is this increased production a temporary thing - a result of the Hawthorne Effect?

ANSWER - The Hawthorne Effect, loosely paraphrased, is the temporary improvement of morale (and therefore production, efficiency, etc.) of employees as a result of any change made by management in an attempt to improve the working situation of those employees. This is to say that regardless of the true effectiveness of the change, if the employees sense that management is trying to help them, they will respond positively. If the change is truly insignificant, then production, efficiency and morale will later decrease proving the change to be ineffectual.

Yes, initially some of the production increases can be attributed to the Hawthorne Effect but probably a negligible amount. Significant production increases have proven to be permanent in thousands of cases - not just as a result of improved morale but also because of increased use of equipment, less wasted effort in start-ups and shutdowns, longer uninterrupted work periods, 20% less travel time to the job site and others.

QUESTION - Does the longer workday increase the probability for more accidents, more temper flare-ups, or other such problems?

ANSWER - There is little or no evidence that such proclivities result.

QUESTION - On the 4-day schedule, the workday increases to ten hours but only four days per week are worked. Does the pay increase or decrease?

ANSWER - Neither the pay nor the pay rate changes. Forty hours per week are maintained and the same pay is maintained whether the time is worked in five days or four days. Take home pay might be affected by a reduction in overtime work, however.

QUESTION - Doesn't moonlighting increase when employees are given another whole day off?

ANSWER - Yes, generally moonlighting does increase slightly, but it is seldom a detriment to the organization or its goals. There is no reason why a person should not be productive in his time off as long as there is no ethical conflict of interest, no disparagement of the organization, nor interference with his regular work function.

In some cases the employees might be asked to "moonlight" at their own jobs if the work load warrants it. Employees at Sweet Publishing Company are happy to work overtime during their four-day weekend; and the company enjoys the capability of drawing on a large, experienced group of workers any day of the week (one crew works Monday, Tuesday, Wednesday and the other crew works Thursday, Friday, Saturday for six full days of operation).

QUESTION - Does the necessity for overtime work increase?

ANSWER - No. With an increase in equipment usage, improved morale, less wasted travel time to a job site, and longer uninterrupted work periods,

production increases. Therefore, the necessity for overtime usually decreases. But when work loads are sufficient to warrant overtime, the availability of capable overtime workers is greater. A 4-day employee has a whole extra day in which he can work overtime if he desires.

QUESTION - How are vacation time, sick leave, and holidays handled on the 4-day schedule?

ANSWER - Sick leave and vacation time can be earned and debited on an hourly basis. Ten hours of accrued leave time are subtracted when the whole day is taken off.

One easy and fairly common way of handling holidays is to revert to 8-hour days during the week in which the holiday falls. Everyone has the same day off (the holiday) and everyone works 8-hour days for that week.

QUESTION - Is it likely that a 4/40 schedule will eventually lead to four 8-hour days or a 4/32 schedule?

ANSWER - It is not very likely. Several labor organizations have been pushing for either four 8-hour days per workweek or five 7-hour days per workweek for several years; but reducing the number of hours worked is counterproductive. Two presidents have rejected such proposals.

QUESTION - The 4-day week is almost always initiated by management. Where do employee organizations fit into conversion?

ANSWER - Obviously the various employee organizations have different relationships with the respective managements. So the position they assume and the importance of the role they play will depend largely on that relationship.

QUESTION - Are there any legal problems with conversion to a 4-day schedule?

ANSWER - Most of the legal problems have already been confronted and resolved, but a check of state laws and contractual agreements should be performed.

The Walsh-Healey Public Contracts Act and the Contract Work Hours and Safety Standards Act specify that time-and-a-half shall be paid for over eight hours of work per day on (Federal) government contracts. This, however, does not preclude conversion to a compressed schedule on government contract jobs. Some contractors feel that the many advantages of a 4-day system justify paying time-and-a-half for the time worked beyond eight hours. As for Texas State agencies, in 1972 Attorney General Crawford Martin issued Opinion No. M-1058 which gives State agency administrative heads the legal authority to assign certain personnel to a 10-hour day, 4-day workweek.

Many states have enacted laws to protect women from abusive labor and employment practices by prohibiting them from working more than a certain number of hours per day or week. However, in the light of the Civil Rights Act of 1964, many of these laws have been revised, and in some cases, state courts have struck them down as being contrary to the

Civil Rights Act. The Civil Rights Act of 1964 makes employment discrimination on the basis of sex unlawful. Therefore, even if such state and local laws exist, they should not significantly impede conversion.

QUESTION - Won't a 4-day schedule be more difficult on working mothers?

ANSWER - Perhaps. There are some apparent difficulties such as arranging for additional babysitting, scheduling evening meals, getting children off to school and being home when they return. The normal housekeeping routine might be radically changed as well as the social and recreational patterns. However, many working mothers find the 4-day schedule a more efficient arrangement of time. Some feel that they can enjoy more leisurely evenings because they now have a whole day in which they can perform routine tasks and run errands, and it also frees Saturday and Sunday to spend with family and friends.

It is seldom mandatory for everyone in an organization to go to the compressed schedule. Often, in fact, it is beneficial for some employees to remain on the standard schedule, and this might provide an alternative for the working mothers who feel that the new schedule is inappropriate for their needs.

QUESTION - If a supervisor has one group of workers on one particular schedule (e.g. Monday through Thursday) and another group on another schedule (e.g. Tuesday through Friday), won't he be required to work five 10-hour days in order to supervise properly?

ANSWER - Perhaps, but some supervisors find that five 8-hour days provide sufficient coverage. This allows the supervisor to be present every day for a major portion of the day; and often supervisors find that their employees perform more responsibly and with more initiative when close supervision is reduced. They respond positively in order to insure the successful adoption and operation of the 4-day system.

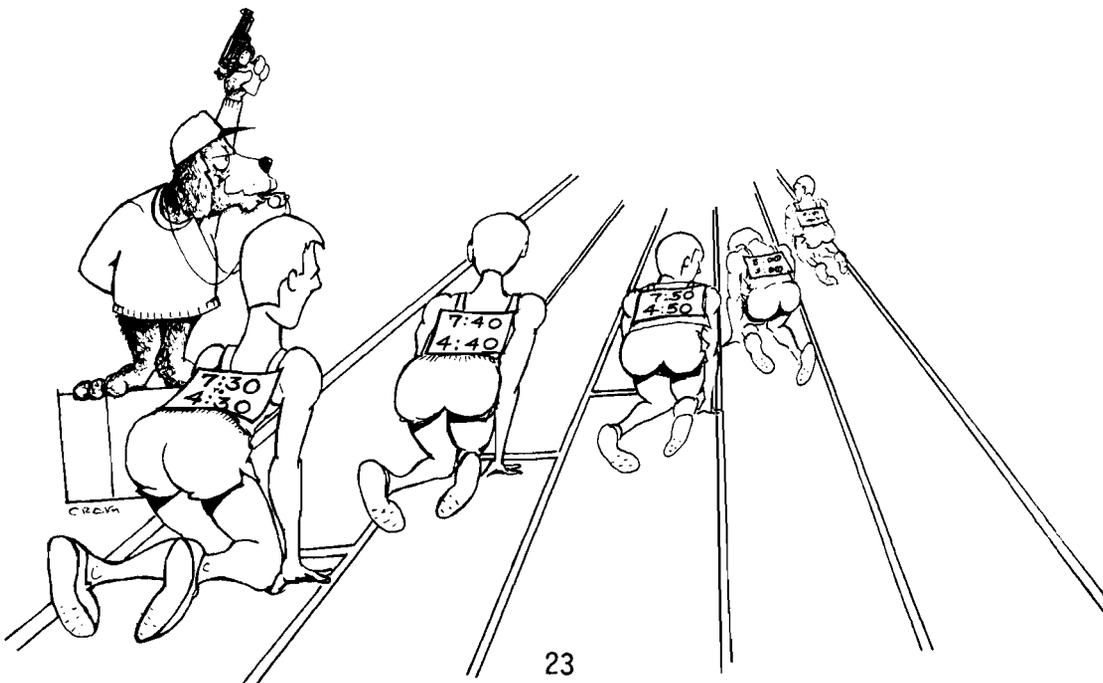
QUESTION - With such a disparity in schedules (within offices as well as between organizations), won't there be a problem with communications? Some people might be out of the office one whole day each week.

ANSWER - It is possible for key personnel to be on a 4-day schedule, which would make them unavailable one whole day each week. However, this difference in schedules will also give key personnel approximately two hours of "quiet time" each day. Quiet time is the time worked before or after standard working hours, so interruptions from interfacing organizations are less likely to occur during quiet time. Many 4-day employees report that it is their most productive time of the day.

## STAGGERED SYSTEM

The second category in the hierarchy of flexibility is the Staggered work schedule. Like the Fixed system, once it is established it does not change.

The Staggered work schedule is really little more than a variation of the standard 5-day, 40-hour workweek since both 5-days and 40-hours are usually maintained. Different groups of individuals, however, are assigned different times to begin and end their workday. One group might work from 7:30 a.m. to 4:30 p.m. (with an hour off for lunch). Another group might work from 7:40 a.m. to 4:40 p.m. and another from 7:50 a.m. to 4:50 p.m. This variation has the obvious advantages of reducing traffic on the streets at any one time as well as reducing the activity in parking lots and elevators at rush hours. A small company might choose to stagger their hours with respect to the prevalent schedule in their area in order to avoid traffic congestion or to provide additional afternoon leisure time.



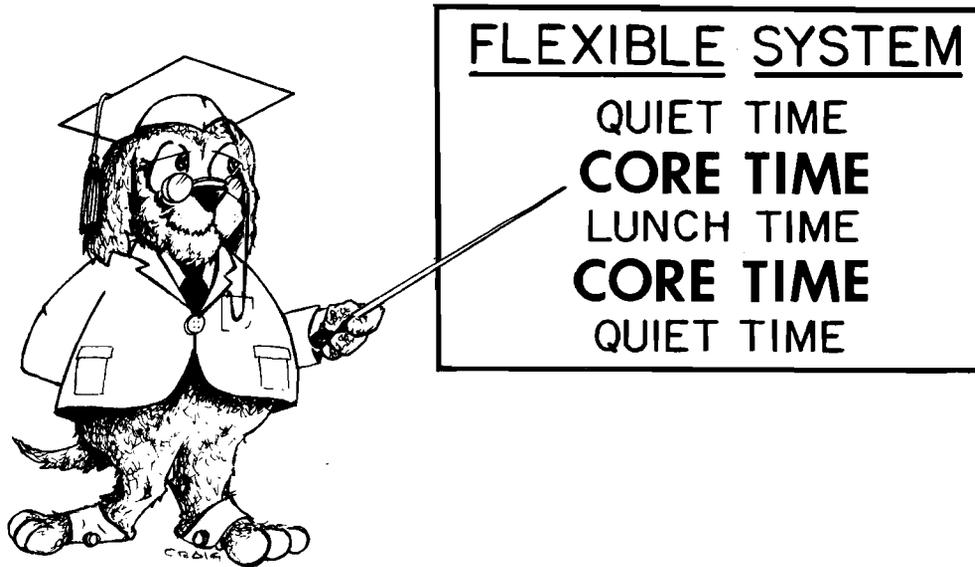
The 65th Legislature of Texas recognized these advantages and provided for the option of staggered hours in the appropriations bill for state agencies. Article V, Section 6, Paragraph b of the appropriations bill states: "Because of the congestion of traffic surrounding state offices, agencies may stagger the work day of their personnel within the working hours of 7:00 A.M. and 6:00 P.M. . . ." Agency administrators are permitted to use their own discretion in choosing staggered schedules for their employees.

The Staggered work schedule provides a certain degree of freedom to both the company and the employees; however, it is questionable whether there is really any more flexibility here than in the compressed workweek. Both systems have predetermined times to begin and end the workday and these times are usually maintained. Moreover, the Staggered schedule does not provide the increased morale and related benefits that the 4-day schedule provides.

## FLEXIBLE SYSTEM

The third general category of work scheduling is the Flexible system. It was first used in 1967 at the Ottobrunn research and development plant of Messerschmitt-Bölkow-Blom, a German aerospace company. The system was adopted in order to relieve traffic congestion by permitting a degree of autonomous scheduling of one's own time within a basic framework.

The Flexible system format consists of (1) a range of time within which an employee may choose to begin his workday, (2) a core time during which the employee must be present, and (3) a range within which he may choose to end his workday.



Depending on the particular system, the employee may be required to have worked exactly 40 hours at the end of the week or exactly the monthly work requirement at the end of the month. Another fairly typical system is one which permits a credit or debit of no more than ten hours at the end of the month.

Such a system was adopted by a Swiss company for 300 administrative employees and it was set up as follows:

They can report for work in the morning any time between the hours of 7:00 and 9:00, but they must be there between 9:00 and 11:30. Lunch can be taken between 11:30 and 1:00 as long as at least 30 minutes are used as required by law. All employees are required to be at work during the afternoon core hours of 1:00 to 4:00 p.m. It is possible to leave work any time between 4:00 and 6:00. Total hours (plus or minus 10) must balance monthly against the work-time requirement.

An employee may work as little as  $5\frac{1}{2}$  hours or as much as  $10\frac{1}{2}$  hours (excluding  $\frac{1}{2}$  hour for lunch) in any one day; as little as  $27\frac{1}{2}$  hours or as much as  $52\frac{1}{2}$  hours in any one week. The only stipulation is that he must be present every day during the core times of 9:00 to 11:30 and 1:00 to 4:00. If the usual monthly work requirement is 168 hours, and the employee works more than 178 hours in the month, he still carries over only 10 hours as a credit balance. He is also allowed to carry over a debit balance of 10 hours, which means that in a given month he may work as little as 158 hours (assuming no credit balance on which to trade) or 148 hours (if he has carried forward a 10-hour credit balance from the previous month).

Theoretically, each employee could maintain a debit balance of 10 hours carried over from month to month. The companies from which we have information, however, report a credit balance averaging  $3\frac{1}{2}$  hours per employee. 16

Some critics of fixed time schedules, and especially the 4-day workweek, claim that the autonomous distribution of one's own time is the central issue. They contend that the appeal, overall benefits, and permanence of a scheduling system are directly related to the individual's freedom to structure his work time around his needs. The Flexible scheduling technique gives each employee some freedom to choose the time he begins his workday - subject to accomplishing the work goals, of course. Obviously if an appointment were scheduled for 8:30 a.m., one would not haphazardly wander in at 9:00 a.m. because he "had the freedom to choose." The system does not relieve the employee from carrying out his duties in a responsible and intelligent manner. Likewise if two people are required to perform a task jointly, they would work out their schedule together just as they would their vacation time or break time. This might also apply to personal secretaries. However, the system more easily accommodates relatively professional employees who work on an independent basis rather than in interdependent teams.

Proponents and users of the Flexible system claim that it, like the 4-day week, significantly increases morale but for different reasons. Both systems provide schedules which might be more accommodating to leisure time activities, but the Flexible schedule gives each employee a say in determining his work hours every day. This freedom to choose, it is claimed, elicits a more responsible attitude from employees. They become happier and more dedicated. They feel an increased incentive to work more efficiently, productively and

harmoniously because they are allowed some control over the scheduling of their workday.

Most of the advantages which result from going on the 4-day week and the staggered schedule can be had in the Flexible system. The benefits of reduced traffic, quiet time (before and after standard working hours), reduced absenteeism, more efficient equipment usage, a longer service day/week, reduced overtime, etc. are all possible under the Flexible system. However, it is not possible for an employee to create his own 4-day week by working four 10-hour days because of the mandatory core time every day.

The United States Geological Survey recently completed a 1-year experiment with a flexible schedule called Flexitime. The experiment was considered very successful and resulted in implementation of Flexitime for all (approximately 10,000) Survey employees in the Washington, D.C. area. Although several federal organizations are now looking into or testing the Flexitime concept, the USGS is one of the first (and largest) federal establishments to adopt it.

Flexitime is slightly more restrictive than the pure Flexible system. It specifies that employees are to work an 8-hour day any time between 7:00 a.m. and 5:30 p.m. provided they are present during the core time of 9:00 a.m. to 3:30 p.m., minus the lunch break. This permits the employee to choose his starting time, but in general, the quitting time is established automatically by the starting time - eight hours of work later. No debit nor credit of time is permitted.

Before permanent adoption of the system, a questionnaire survey was conducted, and some of the findings were as follows:

Reductions in absenteeism - During the experiment, short-term leave usage decreased by more than 20 percent, probably because employees were able to schedule personal activities outside of working hours.

Tardiness - 71 percent of all supervisors felt that tardiness declined.

Employee morale - Substantial increases were noted, and Flexitime has also been a recruitment incentive. It is also believed that Flexitime has helped reduce personnel turnover, particularly among students and working mothers.

Productivity - 27 percent of all supervisors felt that the amount of work accomplished increased as a result of Flexitime; only 5 percent felt that there had been a decrease.

Overtime usage - Decreases in the amount of paid overtime required under Flexitime were reported by 62 percent of all supervisors.

Utilization of specialized equipment - Offices were able to make greater use of specialized equipment because of the longer operating day.

Quiet time - 73 percent of all supervisors felt that they and their employees benefited from "quiet time" periods before and after core time.

Traffic and transportation - Morning and evening traffic congestion around the National Center was eased, and 56 percent of all employees reported some reduction in their commuting time.<sup>17</sup>

In addition to these benefits, the Flexible system also provides increased available time to serve the public; increased opportunities for women to enter the work force because their family responsibilities are more easily accommodated; and employee cross-training in order to cover functions outside of core time.

## QUESTIONS ABOUT THE FLEXIBLE SYSTEM

QUESTION - Flexible scheduling means being able to begin the workday at any time within the specified range. Does this mean that meetings cannot be held at any time other than during the core time?

ANSWER - No. Even though the system specifies a core time when everyone is to be present, it does not necessarily preclude meetings outside the core time. The system is intended to provide advantages through flexibility, but to maximize these advantages, the system must be administered with common sense, practicality and professionalism.

QUESTION - If an employee can report for work as early as 7:00 a.m. and work as late as 6:00 p.m., can't he get in his 40 hours in four days and take the fifth day off - create his own 4-day week in other words?

ANSWER - No. Some flexible systems permit both accumulations and deficits of time, but the core time requirement insures that whole days are not taken off. Other flexible systems require exactly eight hours of work each day with no accumulations of time.

QUESTION - Aren't timekeeping problems significantly increased where there is a large number of employees arriving randomly during a two to two-and-one-half hour range?

ANSWER - Probably not. In some cases time clocks and other sophisticated timekeeping equipment are already in use. In some cases timekeeping equipment is purchased. In other cases the employees are given the responsibility to keep up with their own time and trusted to do so accurately.

QUESTION - What if the work function requires employees to work together in groups?

ANSWER - The Flexible system works best for relatively professional people working independently. However, interdependent teams may also enjoy a degree of flexibility by working out their schedule in advance.

QUESTION - If the workday span is increased to ten hours and employees arrive and depart randomly during a two hour period, doesn't proper supervision become more difficult?

ANSWER - Supervisors sometimes feel that they must be present for the entire workday. For these supervisors, perhaps more time would be required. In some Flexible systems, supervisors have learned each other's job so they can fill in for each other. But often, when employees are told that the new system not only allows them more flexibility but also demands that they accept more responsibility, they respond with renewed interest and commitment.

QUESTION - Aren't interoffice and intraoffice communications hampered?

ANSWER - Somewhat, but it seldom proves to be a significant problem. Everyone is present during the core time, and the quiet times are especially useful for tasks which require more concentration with fewer interruptions.

QUESTION - Are there any legal problems associated with conversion?

ANSWER - As in the case of the 4-day workweek, more than eight hours of work per day might violate either existing contractual agreements or

federal law on government contract jobs. There are apparently no legal problems associated with Texas State agencies converting to a Flexible system as long as the office is open from 8:00 a.m. to 5:00 p.m.

QUESTION - Wouldn't such a Flexible system tend to discourage or work against car pooling?

ANSWER - The system is not conducive to car pooling.

## VARIABLE SYSTEM

The fourth general category of work scheduling systems is the Variable system. It permits the most flexibility of the four main types of scheduling techniques. Unlike the other systems, no core time is specified; starting and quitting times might or might not be specified. The employee may work whenever he wishes and he may take time off without specific permission, as long as his work function is covered in his absence.

Such a loose and free system might cause some managers to shudder at the thought but not the managers of a German time-recording meter assembly plant, the Hengstler Gleitzeit Company. The Hengstler Gleitzeit (gliding time) Company has 100 employees who schedule their own workdays, and they even have keys to the plant to let themselves in at any hour. The employees learned all positions on the assembly line, and they are permitted to turn it on to do their work whenever they desire. Willi Haller, managing director of Hengstler Gleitzeit, reported that he was delighted with the results and that a fourfold increase in output has resulted over three years. Now the two plant supervisors spend their time on systems design rather than on personnel problems.<sup>18</sup>

Variable time scheduling offers many of the same benefits that the compressed workweek, Staggered schedule and Flexible schedule offer; and like the other scheduling techniques, many of the company oriented benefits result from increased morale of the employees. Employee benefits result from the freedom of each individual to plan his workday to fit his needs, both on the job and off.

As in the other systems, many variations are available with which managers and administrators can custom design the schedule to best fit the needs of the employee and employer. For example, if it were undesirable for employees to work late at night, limitations could be imposed. It could be specified that work would be performed between 7:00 a.m. and 6:00 p.m., or the plant might be closed on weekends to facilitate equipment maintenance. It might be specified that no more than a certain amount of time could be accumulated, or perhaps a credit or debit of time would have to be either taken off or made up by the end of each month.

Even though the variable system hasn't been widely adopted, it still should be considered a valid scheduling technique. However, the appropriateness of it for any particular organization, like the appropriateness of any system, should be carefully evaluated before implementing it.

## THOUGHTS ON CONVERSION

For some reason not fully understood by this writer, the subject of varied work schedules quickly polarizes people, whether they are apt to be directly affected by such a new schedule or not. At the very mention of "4-day workweek," individuals quickly assume a position, entrench, and argue vociferously (and often invalidly) pro or con. To some it becomes a game to try to topple the system, and they think they have issued the felling blow when they announce "it just won't work" or "people just can't work ten hours straight!" Others seem equally as partisan and illogical in favor of a particular system, extolling its virtues with complete disregard for the type of work situation in which it is to be used. Neither position is tenable. The choice of a work schedule should be made objectively - based on sound reasons.

Any major change to the schedule must be justified. A number of half-baked conversions have proven the folly of inadequate planning and a failure to establish valid reasons for changing over. It is unjustifiable to undertake a conversion just to appear progressive or innovative; nor are management difficulties any justification for trying a new system. On the contrary, conversion to a new system requires (at least in the beginning) a strong and capable leadership. Some companies have rushed headlong into a conversion attempt to try to alleviate management problems only to find themselves in worse shape later.

Moreover, it is fallacious to specify a schedule based on generalizations and categorizations. In other words, one should not assume that a specific system, such as the 4-day schedule, is appropriate for a

particular small industrial firm and inappropriate for a particular large, capital intensive company just because many of the early conversions to 4-day were small, nonunion, nonurban, manufacturing firms. The system might or might not be appropriate. The experiences of others are invaluable in the decision making process; but a definitive choice cannot be made without thoroughly examining the details of the group which is being considered for conversion.

Given that a sufficient and capable staff is available, planners should first develop objectives as specifically and precisely as possible. Know what the goals are. What can realistically be expected from a new system? Does management wish to provide additional employee benefits? Is there a need to reduce absenteeism, employee turnover or operating costs? Is there a specific need to better utilize equipment, increase production, reduce traffic congestion, or aid recruitment? Whatever the needs and objectives are, they should be written as specifically as is practicable.

Based on these needs, goals, objectives, company structure, etc., the basic system should be selected. It should then be carefully examined to determine whether it can be tailored to maximize what the company wishes to accomplish with the new system.

The scope of the plan should be determined and thoroughly defined as to which divisions, which sections, and which individuals should be put on the new schedule. Should a trial period precede permanent adoption? If so, who should the test or trial include? How long should it last?

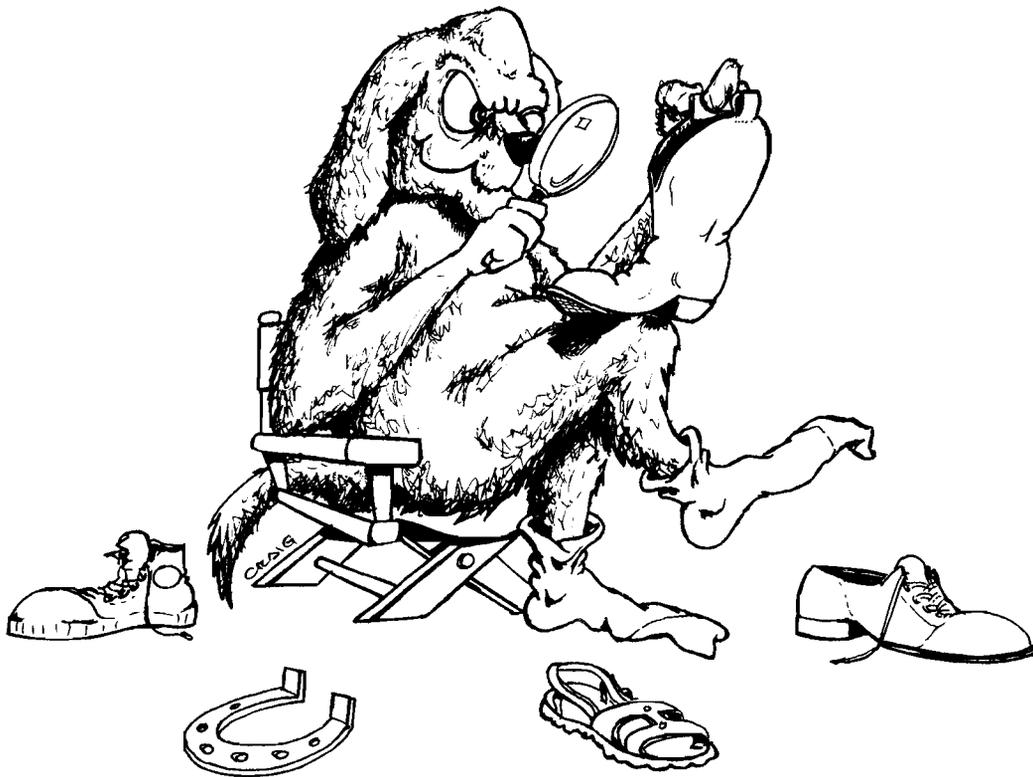
Periodic progress reports are valuable for permanently recording the details and development of the conversion; and they also permit a more objective analysis of the new system. "Before and after" studies should help determine whether the goals are being met or whether additional fine tuning is needed.

The timing and technique used for announcing the new plan is very important. As Wheeler, Gurman and Tarnowieski put it in The Four-Day Week, an AMA research report, "Successfully communicating details of a program that may strike some employees as a dramatic departure from their normal routine may be vital to the success of the project itself."<sup>19</sup> As a general policy, announcement should be delayed until many of the details are worked out. Those making the announcement should be prepared to answer all questions concerning who, when, where and why. Experience has shown that one effective way to communicate these details is to divide the group into small, informal discussion sessions where an individual's questions can be answered. Those leading the sessions must be prepared to answer all questions relating to pay, benefits, holidays, vacation and sick leave policy changes if any, and similar common employee concerns. Confusion and fear are very detrimental to a successful conversion and must be allayed quickly. The employees must be assured that take-home pay, especially, will not be reduced.

## CONCLUSIONS

The original tenor of this study was to convincingly present the values of the 4-day workweek; but as information was accumulated, more was learned about other work scheduling schemes. It became increasingly logical and practical to choose the most appropriate system for the conditions.

No two organizations are exactly alike; nor their needs; nor their goals. Therefore it is no more logical to try to apply one scheduling technique to all work situations than it is to try to make everyone wear the same size of shoes. Some would be too cramped. Some would find the fit perfect, while others would find the fit entirely too loose.



No longer are employers bound by tradition to a work scheduling scheme which is inappropriate and inefficient. No longer is it necessary for the many working people to crowd, twice each day, onto streets and freeways, all trying to reach their destinations at the same time. Now there is a choice. Within four general categories fall several tried and true plans, and other plans can be devised to fit more unique job situations. Each schedule can be designed and re-designed to fit the specific needs of the group in which it is to be used. Scheduling techniques are now available which will work for the organization rather than ones for which the organization has to work.

## REFERENCES

1. A Shorter Workweek?, An Information Manual on Key Questions Chamber of Commerce of the United States (Washington, D.C.), p. 28.
2. A Shorter Workweek? p. 29.
3. A Shorter Workweek? pp. 29-30.
4. Riva Poor, "Reporting a Revolution in Work and Leisure: 27 4-Day Firms," in 4 Days, 40 Hours, ed. by Riva Poor (Bursk and Poor Publishing; 66 Martin Street; Cambridge, Massachusetts, 1970), p. 17.
5. A Shorter Workweek? p. 60.
6. A. O. Elbing, H. Gadon, and J. R. Gordon, "Flexible Working Hours: It's About Time," Harvard Business Review (January-February 1974), pp. 18-19.
7. Poor, 4 Days, 40 Hours, p. 19.
8. Carl J. Suchocki, "Four-Day Week Needs Game Plan for Success," Iron Age (March 16, 1972), 65.
9. J. L. Steele and Riva Poor, "Work and Leisure: The Reactions of People at 4-Day Firms," in 4 Days, 40 Hours, ed. by Riva Poor (Cambridge, Massachusetts, 1970), pp. 120-121.
10. Suchocki, Iron Age, 66.
11. Acknowledgement is made to Jim Widmer of Sweet Publishing Company (Round Rock, Texas) for information supplied in a telephone interview on May 27, 1977.
12. Carmen D. Saso, The Four-Day Workweek, A Public Personnel Association Special Report, pp. 2-3.
13. Tracy Cortese, "4-Day-Week Comes to J. P. Wisser's Office," The Austin American-Statesman, (March 10, 1977), B8.
14. W. M. Gere, South Dakota's Use of the Ten Hour Day, South Dakota Department of Transportation (June 14, 1977).
15. Dale Terry, "In Throckmorton They All Like the 4-Day Week," Transportation News, Vol. 2 No. 4 (December 1976), 2.
16. Elbing, Gadon, and Gordon, Harvard Business Review, 20.

17. "Flexitime Test," United States Geological Survey Annual Report, Fiscal Year 1976, pp. 167-168.
18. Elbing, Gadon, and Gordon, Harvard Business Review, 19.
19. K. E. Wheeler, R. Gurman, and D. Tarnowieski, The Four-Day Week, An AMA Research Report, p. 28.

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The telephone interview granted by Mr. Jim Widmer of Sweet Publishing Company has been valuable to the study. Even though the material was not quoted extensively, his personal account of the logistics of conversion and results of a compressed workweek lends credibility to the many other reports of similar results.