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Here's the story of how one Midwestern company met—and conquered—one of the great obstacles to use of work measurement techniques—middle management resistance. It did it by using—

SUPERVISORS AS WORK MEASUREMENT ANALYSTS

by Donald S. Andersen

Northwestern National Life Insurance Company

THE DIFFICULTY of overcoming the suspicions and misconceptions that first-line office supervisors frequently have about clerical work measurement is often cited as one of the reasons why some companies either avoid such programs or achieve only minimal results.

Yet when the supervisors themselves become involved with the improvement program—when it isn't just something ordered by top management and carried out by a group of "experts"—the shibboleths fade away and progress becomes almost inevitable.

Let me point out, however, that favorable results are not automatic. Three conditions, in our opinion, must be met:

1. Enthusiastic, honest, and continuing top management approval and support

2. Supervisors who are at least willing to be shown

3. A measurement technique that is simple to learn, yet sufficiently accurate.

We at Northwestern don't claim that our program is perfect, nor could it be expected to work exactly the same in another company. But we are glad to tell our story to add to the limited store of knowledge on the subject and to help overcome some of the myths that surround it.

Northwestern National Life Insurance Company is both a stock and a mutual company. It offers a wide range of insurance products, including individual life insurance, annuities, pension plans, group life and health insurance, individual health insurance, and mutual funds. More than half the company's business is in group insurance.

Founded in Minneapolis in 1885, NWNL now has 620,000 policy-owners and ranks thirty-second in

insurance in force and fortieth in assets among some 1,800 U. S. life insurance companies. In 1969 for the first time sales exceeded \$1 billion and total premium income exceeded \$100 million.

In 1963, with the aid of a consulting firm, NWNL started a work measurement program based on time study. It identified potential annual savings of \$700,000.

By 1966 we had completed our first swing through the home office and were well on our way around again to the next level of positions. Some 140 jobs in all had been identified as superfluous.

With results such as this, one might logically ask, "Why change?"

Three prime reasons caused us to alter our program early in 1968:

1. We found that department supervisors tended to be suspicious of the nature and intent of work measurement in their units. They

had been, in effect, left out of the program. Yet their wholehearted cooperation was necessary to maintain good human relations in their departments and to assure that the identified potential improvements would be lasting.

2. We realized that the supervisors were in the best position to notice the changes that were bound to occur in jobs over a period of time.

3. Rather than build a large central staff of analysts we wanted to have part-time analysts in each department.

These considerations, then, led us to the rather unorthodox conclusion that our supervisors should become work measurement analysts for their own departments.

Here the measurement technique itself came into the picture. Although time study had served us well when used by trained analysts, we had several reasons for changing the prime technique in our current program:

1. We wanted an "absolute" standard—a time standard that would not vary from clerk to clerk as turnover occurred—a standard that was achievable and could be used as a benchmark for properly rating an employee's effort.

2. We wanted better documentation of the standards for verification when a question was raised as to their accuracy and for maintenance when significant changes occurred in jobs.

3. We wanted to shorten supervisory training time, if possible—certainly not lengthen it.

4. We wanted to be able to set standards or measure jobs and

equipment, on paper, before any one was actually at work on the job.

This line of reasoning led us first to the idea of predetermined time standards in general, then to Master Clerical Data (MCD), a development of Serge A. Birn Co., Inc., management consultants, Louisville, Kentucky. We retained this firm to train us in the application of MCD and aid us in re-orienting our program.

Training for supervisors

Not every supervisor makes a good measurement analyst, of course, even with training. In any given department, however, there are always several supervisors at various levels. So we have some leeway in selecting the one who will be the analyst.

These are the four characteristics we look for:

1. The ability to communicate what he needs, what he is doing, and why he is doing it

2. A personality that enables him to promote a cooperative spirit in his department and get the message across to employees in a positive way

3. A level of intelligence sufficient to grasp the work measurement concepts and use them under guided supervision

4. A reasonable likelihood that he will stay with the company for a long enough period to make the training worthwhile.

The program for developing supervisor-analysts begins with a 32-hour course on the history of work measurement, the technique of standard setting by MCD, and the use of the weekly performance report. At the end each supervisor writes a standard on his department or unit. Thereafter, learning to use the report effectively, maintaining standards, and bringing up the performance of each individual for whom he is responsible provide a continuing learning process for every supervisor.

The 32-hour course is divided into 8 half-days as follows:

Day 1

- Introduction
- History of work measurement
- Analysis of MTM task and documentation

Days 2 through 6

- Task breakdown
- Standard documentation method
- Writing of standard on task performed in class
- Selection of task in own department for standards write-up

Day 7

- Use and interpretation of the weekly report

Day 8

- Complete write-up of sample department task.

In brief summary, here is a description of how the standards are actually set:

1. Someone from the operations department confers with the supervisor about the who-what-when-why-how of the job to be analyzed. This gives the supervisor-analyst a good overview of the work and many of the answers needed for the "Task Description" page (see Exhibit 1 on page 21), which he fills out.

2. The supervisor-analyst gets a step-by-step description of the work from the clerk who is actually performing the job. This establishes the job more firmly in the analyst's mind and pinpoints the frequencies that will have to be determined.

3. The analyst observes the job. This ensures that no step has been missed from the previous descriptions and gives the analyst a better "feel" for the work.

4. Using a Methods Analysis Sheet (see Exhibit 2, pages 23-25), the analyst codes the job, enters the time values, and determines the actual job standard.

5. The standard is subjected to a "reasonable" test. By relating the new standard either to an old one or to a rough time study determined when the analyst observed the job, the analyst rules out obvious mathematical errors. All docu-



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mented standard time card so that the line department has one set in addition to the operations department's record.

Each employee reports his own production on a Daily Production Record (Exhibit 3 on page 26). When reporting jobs for which standards have been set the employee simply needs to record the name and code number of the job, the number of times it was performed (via tick marks), and the work to be carried over to the next day.

Nonstandard work is reported on the top part of the form. Unmeasured work (Code 7) is regularly scheduled work for which no standards have been established. Here the employee must describe the job briefly, including any infrequent job elements that may be part of it, and record his start and stop times and total time for that job, including any personal breaks taken during the job.

Time not available for work because of no work; meetings; training; work not regularly scheduled for that desk; vacations; holidays; lateness; or absence must be shown whenever it occurs or the report

formance. Overtime and part-time work also must be identified to avoid misleading results; the time reported must agree with that shown on time cards.

All daily production records are turned in to the supervisor at the end of each day. Each record is audited and totals are extended by the supervisor each morning before the record is sent to the key punch unit. Soon the input will be read by our optical character reader (scanner) to speed up the input process.

The key punch unit holds the punch cards until the week is complete, then sends them to the computer room for the run set-up by the tape librarian. All output is distributed by the input/output unit as the weekly performance report. One copy of each department's report goes to the appropriate manager, and one copy of each departmental report goes to the operations department, where we check for inconsistencies and errors before filing the reports for reference and graphing specific information. As a by-product, we also get a volume and trends report on

The weekly performance report has a variety of uses. One use was cited by a supervisor, Jackie Wetterling of the filing department, as: "...the weekly performance sheets are posted in the department where everyone can take notice. They seem to promote *friendly competition* among the girls and at the same time provide an *incentive* factor. By being on a report system, I believe it tends to make a supervisor more honest in her *evaluation of people* by not allowing personal feelings to be the only judge."

Another use is the development of actual learning curves for comparing the efforts of new people, as described by Lee Mallam, supervisor, key punch unit: "... I have been able to establish a learning curve that shows me right away if a new operator isn't performing up to par." The normal learning curve has been put on a transparent sheet and is laid over each new operator's performance record for instant comparison.

Certainly, one of the most obvious uses of the weekly performance report is *merit rating*. Ken

EXHIBIT 2

Sheet <u>1</u> of <u>3</u>		METHODS ANALYSIS SHEET			Job No. <u>NSFPW02</u>	
Operation		SUMMARY				
MCD CODE	DESCRIPTION	Var.	Work Units	Freq.	Total Units	Seq. No.
NSFPW02	Seq. 1 Get red tickets to work area	JOB	232	1/10	23	
NSFPW02	Seq. 2 Count red tickets	RT	23	1	23	
NSFPW02	Seq. 3 Get route envelopes	JOB	282	1/10	28	
NSFPW02	Seq. 4 Route red tickets	RT	356	1	356	
CODE	Identification	Frequencies	Total Work Units		430	
			STD = .26			

Sheet 2 of 3

METHODS ANALYSIS SHEET

Job No. NSFPM02

Operation GET READY AND ASIDE ACTIVITIES

MCD CODE	DESCRIPTION	Var.	Work Units	Freq.	Total Units	Seq. No.
GLT	Get brief case to work area	JOB	59	1	59	①
GSO	Open flap on	JOB	19	1	19	
PG	brief case	JOB	13	1	13	
GBT	Get red tickets to desk	JOB	49	1	49	
GTL	Return brief case to desk	JOB	59	1	59	
GMT01	Get pencil - aside when done with job	JOB	33	1	33	232
						②
HSE	Count red tickets	RT	23	1	23	23
ODD01	Open desk drawer	JOB	62	1	62	
GST	Get envelopes needed	JOB	36	1	36	③
GSA	to desk - close drawer	JOB	15	9	135	
PG	Enter count to	JOB	13	1	13	
WD	daily work sheet	JOB	18	2	36	282
CODE	Identification	Frequencies		Total Work Units		
JOB		1/10				
RT	Red Ticket	1/1				

Sheet 3 of 3

METHODS ANALYSIS SHEET

Job No. NWPN02

Operation PROCESS RED TICKET

MCD CODE	DESCRIPTION	Var.	Work Units	Freq.	Total Units	Seq. No.	
EM	Read route number	RT	10	1	10	4	
ERD01	on red ticket	RT	7	2	14		
WD	Write route number on envelope	RT	18	4	72		
HSF	Turn red ticket over	RT	23	1	23		
HFN01	Fold/Crease on perforation	RT	44	1	44		
GSO	Get envelope and red ticket	RT	19	1	19		
MEI01	Insert in envelope	RT	50	1	50		
MES01	and seal	RT	80	1	80		
GSF	Put in route box	RT	44	1	44		356
CODE	Identification	Frequencies	Total Work Units				
RT	Red ticket	1/1					

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Wethe, supervisor, new business, feels "... the MCD Report System is a very valuable tool in the management of a department. The report is reviewed on a weekly basis to determine department, unit, and individual performance. Decisions involving staff changes, use of overtime, or overload help are evaluated with information contained in the report. Each individual's weekly performance is recorded on a summary record. This record of performance is used as a quantitative element in preparing the employee's merit review."

Desirable side effects

One of the first things learned by supervisors in their analytical MCD training is the importance of method. The use of pre-engineered standards continues to emphasize this.

As central transcribing department supervisor Barbara Camp-

bell says, "Better work habits have developed through MCD. One instance involved lining up work for an automatic typewriter. When writing up a pattern to decide which piece of work should be done next, the method previously used was cumbersome. Cases were piled on the typist's desk—going through the piles to decide what should be done next took too much time. It was decided a desk organizer would help. One was obtained, and since then selection time is improved; the work is placed where it belongs as soon as it comes in—no more helter-skelter—and the desk is clear for action."

These remarks by some of our first-line managers reflect what we consider to be a most worthwhile fringe benefit of our work measurement program: the growing involvement of supervisors in home office operations. A primary reason for teaching pre-engineered standards to supervisors was to impart

greater understanding of work measurement and greater acceptance of the work measurement concept. But what we are now seeing is a far greater use by supervisors of the basic work concepts and application of that knowledge to improve the performance of employees.

As Floyd Erickson, supervisor of policy files, says: "Work measurement can succeed *only* if a manager and supervisor are thoroughly sold on the idea." This is certainly true, and it is our hope at NWNL that MCD techniques and work measurement principles will continue to be instruments to improve working conditions through supervisor job knowledge, training, and impartial judging of employees.

Results speak for themselves

When the original measurement effort began in 1963, NWNL had a home office staff of 626, insurance

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EXHIBIT 3

DAILY PRODUCTION RECORD

DEPT	C. F. 1 4	NAME		Man. App.	Suspense Desk	DATE	Mo. Day Yr.
Units	1, 2, 3, 4		5, 6				7 to 12
DESCRIPTION --	NON-STANDARD WORK	Start Time	Stop Time	Col	Code (1)	Col	Total Minutes (3)
Balance J. 60 Recap				13		14	
Balance 91-92				17		18	
				21		22	
				25		26	
				29		30	
CODES: (1) No Work (2) Overtime (3) Meetings, Training, Reports, Studies (4) Part Time Minutes (5) Late, Excused, Absent (6) Vacation, Holiday (7) Unmeasured (8) Not Pd-Not Worked Mins. Cols 33 to 35							
JOB - ON STANDARD	C	VOLUME - No. of Units		STD Code (4)	Total (4)	(4)	Carry Over (4)

in force of \$2.7 billion, and assets of \$400 million. At the end of 1969 the company had more than \$5.4 billion of insurance in force, assets of more than \$617 million, and a home office staff of 534, 225 of whom would be measured and reporting under our work measurement system.

In other words, while insurance in force doubled and assets increased more than 50 per cent, the number of employees dropped by 92, or almost 15 per cent. So far 145 employees are reporting under actual measurement, but another 80 were to have been added in 1970, attaining the total of 225, or slightly more than 40 per cent of the home office. Performance on measured jobs averages 90 per cent, and 85 per cent of the reported work is covered by standards.

Because of the involvement of supervisors as analysts, all of this has been achieved with two full-time analysts. The chief cost reduction analyst is a licensed MTM instructor with previous background in clerical administration, EDP programming, and computer operations management. The senior analyst is a certified MTM applicator. A new junior analyst just joining the department is a woman with 20 years of work experience, a

dozen of them as a supervisor, who had been writing MCD standards for her department. It is anticipated that most of the chief cost reduction analyst's future time will be spent on research work. In the past year, effort has been placed on automated learning curves, personnel selection tests, and job training, all based on research developed with the sponsorship of the Methods-Time-Measurement Association (MTM) at the University of Michigan.

All in all, NWNL figures that every dollar spent annually to continue the measurement program is returned more than twofold in the same year. And, of course, accumulated savings retained in subsequent years multiply this many, many times.

Equipment purchasing

Because MCD allows jobs (and costs) to be simulated accurately before equipment is purchased or people are actually at work, NWNL has been able to make pre-purchase studies involving such equipment as the following:

- Printing; multilith and electrostatic plate maker
- Paper collater and stitching machines

- Xerox machines
- Electric vs. manual typewriters
- Automatic typewriter (MT/ST)
- Optical character reader (scanner)
- Cathode ray tubes.

One study of electric vs. manual typewriters, for example, showed that the electric would pay for itself when the typist used the machine .74 hours or more per day.

The operations department is also involved in simulation through computer modeling, which was the basis for the Xerox study and another study in our claim department used to improve service.

The future

The addition of 80 jobs to the previous 145 consumed most of the available work measurement effort in 1970. Now, with initial installation complete, the program will be continued on a maintenance basis, reviewing standards every year or two or as need demands. Managers and supervisors will continue to be trained in work measurement schools held three or four times a year to enable them to better understand and manage their areas of responsibility.