

SPAN OF CONTROL AS IT APPLIES TO THE MAINTENANCE FOREMAN

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SUMMARY

This discussion was prepared as an adjunct to the Iowa State Highway Maintenance Study. It reviews the trends noted in the supervisory spans in industry and then presents an analysis of the factors influencing the span of control in the job of the Iowa State highway maintenance foreman assigned to each county. The conclusions are that the highway foreman operates in a more complex environment than his industrial counterpart and that the average foreman is overburdened if he supervises more than 12-15 employees.

The recommendations follow:

- (1) Take steps to improve communications between foremen and employees on the job,
2. Live with present spans but provide relief for the foreman by one of the following (presented in order of preference of the author):
 - (a) Provide foreman with a planning clerk (a functional staff position) and at least 2 working supervisors (gang bosses),
 - (b) Provide the foreman with an assistant who would become essentially a "junior partner," He would speak for and make decisions in behalf of the foreman with who he would share duties.
 - (c) Provide the foreman with an assistant who would be put in charge of a portion of the county's work force.

INTRODUCTION

It seems fairly safe to say that few topics have received as much attention in the literature of management and industrial organization as has the principle of Span of Control or Span of Management as it is sometimes called. Unfortunately, this attention has not produced much in the way of specific answers to the question, "How many subordinates ought an individual supervise?"

What this attention has shown and shown quite clearly is that no one knows the correct answer. In a given situation one supervisor might be taxed to his limit and another might easily assume new duties. Likewise, the same supervisor with the same number of subordinates placed in two different work environments might find himself on the verge of nervous collapse in the one case and in the other situation be a model of poise, confidence, and contentment. In other words, the answer to the question is simply, "It depends."

It depends, for example, on the man himself, his abilities, his work environment, his duties, the duties of his subordinates, their abilities and skills, the policies and the organizational structure of the firm, and so forth. Each situation will probably produce a different answer, and the variation among answers may be great.

It is interesting to note that it is this inability of the principle

to specify or prescribe the optimum number of subordinates that has caused a number of writers recently to criticize the accepted tenets of Span of Control and to, in effect, suggest that the science of management abandon it completely. They cite the increasing number of successful organizations (e. g., Sears with 40 store managers reporting to one supervisor or the Bank of American with 600 branch managers reporting to its board) which have violated the accepted limits. They further suggest a much more satisfactory answer can be found in the application of the social sciences to the problem.

Of course, rebuttals have been equally vigorous in noting that the social sciences are still relatively undeveloped and, as yet, are incapable of handling the span problems with any degree of precision. They also cite the numerous successful organizations that have been designed with strict adherence to the principle.

Nevertheless, a definite trend in organizational development seems to be under way which is causing the upper limits of the span to be stretched. Most writers suggest that this pressure has resulted as a consequence of the current popularity of the decentralized organization. A wide span forces supervisors to delegate more and, hence, spawns greater independence in the actions of subordinates.

As one might gather the debate on what is to be gained -- or lost -- by widening the span continues. However, the fact remains that a limit in the number of men a supervisor can effectively and efficiently direct exists. The key is what is to be thought effective and efficient. To establish this and interpret it in terms of the span width still is one of the major problems confronting the organizational analyst.

Research on going concerns indicates that the span narrows as the summit of the organization is approached. The higher levels are referred to as the span of executive supervision and the lower levels as the span of operative supervision. The latter only is under concern in this discussion. Surveys have shown the operative span range from 10 to 70-80 for highly stable, standardized jobs. Graicunas ^{1/} predicted a range of 20 to 30 but the most frequent value seems to fall between 10 and 20 with 16.7 given as mean in one rather extensive survey ^{2/}. These values are in contrast to the range of 1 to 20 for the executive span with a median generally shown to be 6 or 7.

It is apparent that essentially the same general factors would define the tolerable width of the span any place it was encountered, operative or executive. Newman lists the following as essential points to consider: (1) variety and importance of the activities supervised, (2) other duties the executive is expected to perform, (3) stability of operations, (4) capacity of subordinates and the degree of delegation, (5) relative importance of supervisory payroll, (6) practicality of relieving an extended span ^{3/}. These are the factors that the analyst must weigh in terms of what is thought to be effective and efficient supervision.

^{1/} Graicunas, V. A., Relationships in Organization, in Gulick, L. and Urwick, L., eds, Papers on the Science of Administration, Institute of Public Administration, 1937, pp. 181-188.

^{2/} Baker, A. W. and Davis, R. C., Ratios of Staff to Line Employees and Stages of Differentiation of Staff Functions. Columbus, Bureau of Business Research, Ohio State University, Research Monograph No. 72, 1954, p. 31.

^{3/} Norman, W. H., Administrative Action New York, Prentice-Hall, Inc. 1951.

ANALYSIS

In considering the job of the maintenance foreman in light of these factors and the observed span widths one cannot but help compare the environment of the highway employee with that of the industrial foreman. The latter normally finds himself well supported by a considerable staff. Someone does his hiring, wage negotiations, training, production planning, timekeeping, maintenance planning, inspecting, and even his personnel and discipline problems are handled at least in part by the industrial relations people. Beyond that, the work he supervises is likely to be highly standardized and stable, particularly if he has a 30-man department or more.

In contrast the maintenance foreman under consideration here has essentially no staff and the work he supervises is anything but stable and unvaried. Further, the question of public relations is quite significant to the highway supervisor but it is practically unheard of in the industrial shop. The obvious conclusion is that the frequency and the severity of the contacts with his subordinates and the public are considerably greater in the case of the maintenance foreman than for the industrial supervisor.

The time available for supervision is another way of looking at the factor concerned with the "other duties of the supervisor." Rarely is the industrial foreman more than minutes from a trouble spot thanks to telephones, telautographs, or the blaring of the public address system. On the other hand, consider the maintenance foreman once more. Assuming that he can even be located, he may be twenty miles from the spot where a decision is required. And, the chance of his being informed of the difficulty immediately are not the best because the crew may not be near a telephone nor may he be any place where he could answer a call. Good supervision requires current information and personal attention to the subordinates. This is extremely hard with crews ranging over a whole county but even more difficult when communications are so poor.

Still another aspect of the foreman's job which consumes time is the amount of traveling required in the normal course of his duties. One of the explanations for the narrow span at executive level is that the varied duties of the executive leave only a small portion of his time for supervision, say 10-20 percent. The production foreman on the other hand may have 75-80 percent of his time available for direction of his subordinates. If the duties and requirements placed upon the highway supervisor were expressed in terms of time requirements, it appears that his "time available for supervision" would be considerably less than his industrial counterpart.

With regard to the question of delegation of foreman's duties to subordinates, it is essentially impossible because the organization as it now stands has no provision for it. The only possible exception may be in the maintenance and repair of equipment. It is true that the employees under him are fairly well trained and experienced, usually know what is to be done and are generally dedicated people. Yet, there is still no one to whom the foreman can delegate the authority and responsibility to see that a certain project gets done as he wants it done.

Finally, the possibility of reducing the span seems a little impractical. For example, if the county were divided into two groups and an assistant foreman placed in charge of each half, the foreman's span would be cut to two. This would certainly leave time for the outside duties

already referred to, probably too much time and the solution would prove to be an expensive one. The foreman would be idle some of the time and the State would have added two more nonproductive employees to payroll. Further, another echelon of supervision would be created adding still more resistance to the effective flow of information up and down the organizational structure. And, of course, the workers themselves would be removed one more level from the source of authority.

CONCLUSIONS

In light of the above, my conclusions are that the maintenance foreman is operating in a somewhat more complex environment than the industrial foreman and, hence, ought not be expected to function effectively or efficiently with the span widths encountered in industry, even allowing for the current trend to greater span limits. Therefore, it is likely that if he is attempting to do this job well, the average foreman is overburdened if he supervises more than 12 employees, certainly if more than 15.

RECOMMENDATIONS

1. Take steps to improve communications between foreman and employees at work.

2. Live with the present spans but relieve the foreman of some of his duties by one of the following (presented in order of preference):

(a) Provide foreman with a planning clerk (a staff position) who would be in charge of communications at garage, do work planning for crews, be in charge of timekeeping and the preparation of the basic data for reports if not the reports themselves, be in charge of the office and handle routine public relations. Further, authorize and recognize in the payscale at least two working supervisors or gang bosses within the work force. These men would not hire or fire or do any of the other duties of supervision. They would merely be the men in the crew to whom the foreman would give his instructions and the ones who would make the decision whether or not the foreman should be contacted in case of trouble.

(b) Provide the foreman with an assistant who would be looked upon as a "junior partner." That is, he would speak for and make decisions in behalf of the foreman. The two could conceivably divide the foreman's duties or could share the work as it occurred. The possible problems developing here are many yet if the personalities of the two blended, it could work very well. Replacing one or the other would have to be done very carefully.

(c) Place an assistant foreman over a portion of the county's crew. This would create an imbalance in the organization since some employees would report to an assistant and the others to the foreman himself. But if this difficulty were recognized, it might prove to be a satisfactory solution.