Professional Development in Requisite Organization

Time-Span of Discretion Measurement/ Extant Analysis

Understanding and modeling the Extant organization is a critical aspect of implementing and embedding Requisite Principles in an organization. Clarity re the Extant organization is obtained through the on-going analysis of the underlying structures and processes in the organization. Always keeping in mind the system as a whole, these findings are compared to and continually examined against the requisite organization model to determine what course of action is required to achieve a more effective managerial system, a requisite managerial system.

The first foundational component of Requisite Organization is in obtaining an accurate measurement of the level of work in a role, which is done by conducting interviews to uncover the Time-Span of Discretion of the Role.

We have compiled and updated a selection of articles which explain the purpose and methodology of conducting the Time-Span of Discretion interview with the Manager of any role at any level in the organization.

Please stay in touch with us at our website: www.requisite.org
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There have been many methods used for attempting to measure the size of roles in managerial systems. To have such a measure is important for many purposes including for selection and for compensation. None of these methods however has been a true measure. They have all contained factors whose values are matters of judgment rather than of objective measurement. The phrase “job evaluation” has been an apt description. This paper describes work that led to a true measure, called the time-span of discretion of a role, with the simplicity that characterizes objective scientific measures such as length, weight and temperature.

It has been widely believed and repeatedly said that objective ratio-scale measurement—weight, length, temperature, force, etc.—as used in the natural sciences, is not possible where the behavioral sciences are concerned. Behavior is said to be too evanescent and unpredictable. Thus we have had to be satisfied with questionnaires, surveys, accounts and like processes, which sound like objective measurement because they use numbers, but which in fact are based upon mere counting or subjective judgments.

An important example in management studies and consultancy has been what is called job evaluation. This process for determining size of role is critical for developing organizational structures, for deciding what to pay people, and for matching people to roles in selection procedures. Thus, for example, if you do not know how big a vacant role might be, you cannot decide how big a person you might need (if you know of course, how to measure the “size” of a person!)

The problem of all job evaluation procedures is that they are built up from a number of factors of different kinds, some of which can be counted such as numbers of subordinates, and some of which have to be judged such as foresight or skill required by the work in the role, which are not even characteristics of the role, but rather of a person thought to be required for the role.

I was faced by this issue in the late 1940s, when I was engaged in consultancy research work with the Glacier Metal Company, an engineering company in England. I was approached by the shop steward conveners of their five craft and staff trades unions, with a request to help them sort out how to measure whether a role A was bigger or smaller than a role B, in order to get some sense into their grading, status and pay system. They were using the services of a well-known job evaluation consultancy company, but
were of the opinion that neither the consultants nor their own work study people even knew what a job or what work was in the first place.¹

What is work?

The union representatives illustrated their point by reference to the common statement “That was tough work (a tough job) doing the work (the job), at work (in my job) today.” We got discussions underway along with observations of work on the shop floor and in the offices, to sort out the three meanings of work concealed within this statement. Six months later we had translated it into “That was tough work, carrying out the tasks, assigned to me in my work role today.” We had three very different constructs defined as follows:

- **Work** as the use of judgment and decision making in choosing goals and in choosing how best to overcome obstacles on the way to a goal. This construct led to the eventual discovery of an objective measure of “size” of person.*

- **Task or assignment** as the goal or output that was to be achieved in terms of a “what-by-when” which led to a measure of “size” of role.

- **Role**: the position occupied in the organizational system.

Without going into detail here (the story is fully described in Jaques (1956) *Measurement of Responsibility*), two years later we had discovered a simple objective ratio-scale measure of size, or level-of-work, of a role, in terms of what we called the ‘time-span of discretion’ of the role. Time-span of discretion was a measure of the longest periods of time that a manager had to rely upon the exercise of judgment by his/her subordinate, a period of time determined by the longest target times set by the manager for completion of assigned tasks or task sequences.

The factors that led to the conclusion that time-span of discretion measured level-of-work or size of role were multiple. First, we found that if the time-span of discretion of a person’s role increased, he/she felt it getting bigger: decreasing felt smaller. Second, individuals in roles at the same time-span of discretion, regardless of occupation, and regardless of actual pay, named the same total compensation as fair or just. This finding was later generalized with the discovery that the same pattern of felt-fair differentials with differentials in time-span of discretion existed worldwide. Third, we found that where you had what was experienced as just the “right” number of organizations layers, the time-span of discretion boundaries between layers were always the same, namely shop and office floor roles between 1 day and 3 months’ time-span of discretion, first-line managerial and professional roles between 3 months and 1 year, and so on up to the top of the organization.

*Now understood as the Time Horizon (TH) of an individual.

¹And I came to realize that there had never been a psychology of work. Freud had said that work and sex were the two most important human activities, and proceeded to forget about work.
Written in 1964, *Time-Span Handbook* sets out the methodology for the first ratio-scale measurement of the intention of a manager. Readers today will study *Time-Span Handbook* with an understanding of the full context of the total system of Requisite Organization and will appreciate the importance of this early breakthrough in human science which laid the groundwork for future developments such as those set forth in *Human Capability* (1992) and in the development of the total system, *Requisite Organization* (1989), comprising the requisite structure and associated processes necessary to achieve effective managerial leadership in an employment system, or managerial accountability hierarchy (MAH).

This Introduction chapter is a useful discussion of the initial difficulties encountered when learning the methodology of measuring time-span of discretion of a role.

## Time-Span Handbook

### Introduction

Elliott Jaques MD, PhD, FRCP [1917-2003]

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It is the aim of this handbook to describe in a practical manner the technique of time-span measurement of level of work and its application to the fixing of payment levels for specific roles. I propose in a subsequent handbook to deal with the use of earning progression curves in individual progression and manpower analysis. As a result of recent developments, these instruments have been made easier to use and more effective. I hope, therefore, that the present handbook will overcome the warranted criticism that previous publications have not described the time-span instrument in a way which makes it possible for others to try it.

The handbook is concerned with nothing but the practical aspects of time-span measurement and its application to payment. Those who wish to know more about the theoretical background will find it in *Equitable Payment*,

2 and the original development of the concepts is described in *Measurement of Responsibility*.

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The book is written primarily for those who wish to learn how to do time-span measurement. It ought, however, to give a practical picture of the method to any interested persons who simply want to know about it. In reading the book, keep in mind that I have tried to give as complete a description as possible,

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so that the technique may appear to be rather less simple and straightforward than it is in fact when once it is understood and practiced by reasonably competent people.\(^4\)

The book is written in four main parts. Part One sets out the main concepts required for time-span measurement and for the associated equitable payment structure. Part Two outlines the technique of measurement. Part Three gives many examples of time-span measurement, to illustrate some of the main points to be taken into account in measuring a wide range of roles at all levels. Part Four sets out the structure of equitable payment level—in £ sterling—connected with time-span, and indicates how to approach the task of transposing these into other currencies.

**The Problem of Time-Span Measurement**

There is one practical question of such great importance in time-span measurement that I must mention it before beginning the proper description of the method. I do so in the form of this short parenthetical section to signify the importance to be attached to this issue.

When the person who is measuring, and the manager he is interviewing, are both familiar with the method, measurement of level of work in terms of time-span is really a very simple procedure indeed. And yet I am well aware that nearly everyone finds great difficulty, in the initial stages, in understanding the instrument. Why do these difficulties exist? I think there are two main reasons.

The first is the difficulty you are likely to encounter within yourself in shifting your frame of reference towards a preoccupation exclusively with time. I have found a decidedly strong tendency in people, when they first attempt time-span measurement, to turn away from the time framework the moment they run into difficulty. Instead of persisting with questions in terms of time, they begin to ask questions about the importance of this or that task, or about the skill, experience, capacity, etc., of the individual who would be selected to occupy the role. There appears to be real difficulty in learning to pursue the search for the time aspect, a difficulty usually associated with the feeling that time cannot be the most important thing about work.

The second is the difficulty you encounter within the managers you are interviewing in connection with time-span measurement. It lies in the fact that almost all of us who are managers are not consciously familiar with the range of tasks we allocate to our subordinates. We are, of course, familiar with some tasks. But there are very few managers who have a sufficiently conscious grasp of the tasks they allocate, not to have difficulty at first in turning their attention to the question of the longest term tasks which they assign.

This kind of difficulty does not persist long once a manager has been taken through the exercise of doing a time-span measurement, and has consequently had the opportunity to think about one or two subordinate roles in the time-span frame of reference. But it does require practice.

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\(^4\) The technique of time-span analysis has recently been streamlined. This advance has been achieved by means of the separation of time-span measurement from detailed role specification. Full-scale role description and specification need not be entered into, and the amount of information which has to be obtained has been radically reduced. This streamlining has not changed in any way the principles on which the time-span technique is founded, or the basic content of the technique. But by making it possible to go much more directly to the essentials, the task of level-of-work measurement has been reduced.
I have always found this phenomenon a striking one. It leads to the conclusion that most, if not all, organizations are only dimly aware of the pattern of the tasks which are being allocated day in day out—the tasks which constitute not some peripheral frill but the very function which the organization has been set up to fulfill. The members of the organization are of course unconsciously aware of all the tasks—and do carry them out. But there is a shying away from explicit formulation. Why we are so anxious about the explicit recognition of tasks and work is not a subject for discussion in this handbook, but shy we certainly are, and time-span measurement cannot begin until this recoil away from looking at the realities of allocated tasks has been overcome.

Time-span measurement becomes simple, therefore, from the moment two prime conditions are satisfied:

**The first:** the person using the instrument has become used to thinking in terms of time and has a good working knowledge of the tasks carried out in the organization.

**And the second:** an organization whose members have become familiar with the tasks they themselves allocate or authorize their managerial subordinates to allocate.

**In short, the main problem that is encountered in time-span measurement is the problem—for both manager and analyst—of orienting towards the task content of work. Remember, it is specific tasks you are looking for—the longest tasks or programs of tasks that the manager assigns (whether directly or indirectly) into the role whose time-span is being measured.**
Kathryn Cason and Rebecca Cason have updated chapter 2, Leading Concepts and Definitions, from Time-Span Handbook, with contemporary Requisite Organization terminology that reflects the theory development after 1964, with the aim to enhance clarity and understanding for present day readers.

Time-Span Handbook
Leading Concepts and Definitions

Elliott Jaques MD, PhD, FRCP [1917-2003]

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This chapter sets out all the main concepts necessary for time-span measurement and for the use of the payment scales associated with time-span measurement. The definition is given for each concept, followed by explanatory elaboration. References are given to sources of further information on the theoretical background of the concepts and on how they were developed.

The concepts generally are arranged alphabetically. But all the concepts concerned with tasks and those concerned with review of discretion will be found grouped together under task and under review, so as to make it easy to consider them in relation to each other.

**Discretionary Content:** those aspects of a task about which a subordinate must exercise his own discretion in order to fulfill his manager’s instruction to him.

It is the discretionary content of work which carries the feeling of *weight of responsibility*. [Note: *weight of responsibility* refers to the internal psychological condition of making choices and taking action in the face of uncertainty.] The person doing the work is on his own, making up his own mind what has to be done, with no certainty that he is using satisfactory discretion until the results of his discretion have been reviewed by inspection or by the use of what he has done.

In any kind of work requiring manual manipulation (for example, machine operation, typing, drawing, etc.), discretion manifests itself in the form of judgments about the pace and application of physical skill.

Discretion always contains judgment with regard to both pace and quality of work; to ensure that the work is done on time and up to quality standards. (See also: Prescribed limits.)
Equitable Payment: *the common norms of payment which have been discovered to be held by individuals in roles of the same time-span, when asked under confidential conditions to state what they would consider to be fair pay.*

Contrary to what might generally be supposed, individuals privately possess common standards as to what constitutes fair payment for given levels of work measured in time-span, regardless of their occupation, actual current earnings, previous earnings, or income tax levels. These norms of fair payment are relative; i.e., they indicate what differentials in payment are felt to be fair in relation to differentials in level of work.

The shape of the equitable work-payment scale is not changed by changes in the wages index. That is to say, the differential pattern of payment considered to be fair remains constant.

Accumulating evidence from other countries besides Great Britain (notably Holland, France, United States, and Switzerland) suggests that the same shaped differential curve may apply, and that the norms of equity in payment differentials may be universal.

Equitable Payment Conversion Rate: *the factor to be used in converting equitable payment levels in one currency to equitable payment levels in another.*

The effect of this conversion is to state the earning levels in different currencies which are equitable for any given time-span. Experience so far suggests that the same pattern of equitable payment differentials obtains in all countries from which data are available.

The equitable payment conversion rate seems to correspond fairly closely with the rate used by large international corporations in setting comparable payment levels for similar roles in different countries.

It may or may not correspond closely with the ruling rate of exchange for the currencies.

General Accountability: *an instruction which applies indefinitely, unless amended, and which specifies conditions which, whenever they arise, require a person to take appropriate decisions or actions within prescribed limits.* [Note: Accountability refers to the external employment condition requiring human decision-making and actions to achieve specific outputs and outcomes.]

Thus, for example, it is a general accountability to be told to give certain types of service when requested to do so by certain prescribed people; or to be told to take certain actions when a given prescribed event occurs.

The task content of a general accountability lies in the activities which have to be carried through at the times prescribed by the policy, e.g., in giving a particular service. The content of the activity may sometimes be prescribed, or may sometimes be left to the discretion of the subordinate.
**Level of Work:** the degree of accountability in a role as measured in time-span of discretion.

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**Level-of-Work Range:** the range of level of work in a role, from the minimum level below which the manager could not get all his work done, to the maximum level which the immediate manager has been authorized to delegate to the subordinate in the role.

The level of work actually being allocated at any given time will be determined in accordance with the level of capacity of the subordinate doing the work. There is nevertheless a minimum level of work necessary in any role if the manager in charge of the roles is to be able to get his work done effectively. There is equally a maximum level of work beyond which it is not feasible to have a subordinate working, since; for one thing, it would begin to encroach upon the manager’s own level of work.

Another way of considering the level-of-work range is in terms of a subordinate newly appointed to the role. When he first comes off probation he may be just capable of doing the lowest level tasks available in the role; that is to say, at the bottom of the range. As he grows in capacity and becomes more experienced, he may develop to the point where he can take on the highest level tasks available in the role; that is to say, at the top of the range. He would not need to improve further for that particular role; were he to do so, to employ his increased capacity would require promotion or else raising the top of the level-of-work range in his role, for example, from the bottom half to the top half of the stratum.

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**Manager:** an individual occupying a role with managerial authority over subordinates; namely, the authority to veto the appointment of subordinates not acceptable to him, to assign work to subordinates, to decide their performance assessment relative to each other, and to dismiss them from his own command if they are not acceptable to him.

This definition of manager and managerial authority is a development from the Glacier Project. It states the minimum authority which a manager must have before he can truly be held accountable for the work of his subordinates.

The definition is important for time-span measurement. Unless the work in a role is being allocated by an identifiable manager, level-of-work measurement may become difficult, since it may be difficult to identify the assigned work with sufficient clarity to measure it.

Managerial roles defined in this way may seem at first sight to be pretty uncommon. In fact, however, it is the explicit formulation that may be strange. A high proportion of roles in charge of subordinate roles carry implicitly the minimum authority described.

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Manager-Once-Removed: if B is subordinate to A and C is subordinate to B, then the individual in role A is the manager-once-removed of the individual in role C.

The manager-once-removed A cannot himself issue instructions to the subordinate C, but he does set the policies which authorize and limit the work which the immediate manager B can assign to C.

Marginally Sub-standard Discretion: discretion which leads to results which are just outside the standards of time or of quality set; i.e., the work is either done just too slowly, or is just not quite good enough in quality.

Marginally sub-standard discretion is to be distinguished from gross and obvious messing up of work—or howlers—on the one hand, and from negligence on the other. It is the quality of work obtained from a subordinate who is nearly good enough for a given level of work, and is trying, but does not quite do that work well enough.

Marginally sub-standard discretion by its very nature reveals itself only under scrutiny, or when a significant amount has accumulated. By contrast, grossly sub-standard discretion, or a howler, draws the manager’s attention to itself. Negligence or dishonesty may sometimes be obvious or sometimes go undetected for a long time, but there are severe penalties, different in kind from those for sub-standard discretion, when the negligence or dishonesty is discovered.

Multiple-Take Role: a role which normally contains a number of intermittent tasks (with possibly some continuous tasks as well) with differing target completion times, so that the occupant of the role must organize and progress a program of tasks.

It is one of the outstanding features of a multiple-task role that the occupant must concern himself with task priorities. He must decide which tasks he ought to be working on at any given time so as to ensure that each task is completed as targeted. It is this feature which makes it possible to borrow time from one task for another.

Prescribed Limits: the real rules, in the form of policies both written and unwritten), procedures, physical controls, signals and other types of control which are objectively set and which must be obeyed. Failure to obey constitutes negligence or insubordination.

The prescribed limits of work can be learned. Response can therefore become automatic. Because the prescribed limits are objectively definable, there is no uncertainty as to whether you have obeyed or not. You can know with certainty if you have been negligent.

Conforming to the prescribed limits of work is not experienced as weight of responsibility. It is simply doing something you have been told and taught to do.
**Review of Discretion:** review by the immediate manager (or by someone acting on his behalf who is accountable for reporting to him) of the discretion exercised by a subordinate in carrying out a task, as shown in the completion time and the quality of the result.

For a review to have occurred, the manager must have been in a position to observe marginally sub-standard discretion if it had been exercised.

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**Review of Discretion, Direct:** direct review is a review of a task, either immediate or delayed, by the manager.

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**Review of Discretion, Indirect:** indirect review is review of discretion which takes place not as a specifically organized act of review by the manager, but through the inspection or use by others of the results of the task, in such a way that if the results were marginally sub-standard this fact would be noted and reported to the manager.

Indirect review is the most common kind of review. The subordinate completes a task, and passes the results of work on to someone else—either to a customer, or to someone else in the organization in the form say, of a recommendation, a partially completed article, a service, a drawing, etc. If the work is satisfactory, nothing is said. A review has nonetheless taken place where, if the work had been marginally sub-standard, it would have been returned or complained about to the manager; in effect, if nothing happens, the work has been passed as satisfactory.

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**Review of Discretion, Immediate:** immediate review is review of a task—whether by direct or indirect means—which takes place at the time the task is completed, either before or concurrently with the commencement of the next task.

With immediate review a manager is in a position to know about the quality of his subordinate’s work as soon as a task is completed. There can therefore be no accumulation of marginally sub-standard work from task to task.

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**Review of Discretion, Delayed:** delayed review is review of a task—whether by direct or indirect review—which takes place at some time after the task is completed.

With delayed review, marginally sub-standard discretion could accumulate during the carrying out of more than one task.
**Single-Task Role:** *a role into which nothing but continuous tasks are allocated, and the order in which the tasks are to be done is prescribed.*

The subordinate in a single-task role has only one task to be worked upon at a time, and he must complete it before he starts his next task. He is thus occupied only with continuous tasks, and has no intermittent ones. The single-task role does not carry *accountability* for task priorities, nor is it possible to borrow time from one task for another.

Sometimes the task on which a subordinate is working may be interrupted, either by a task generated by a general accountability (for example, to answer the telephone) or by a directly assigned task. But the role remains a single-task role if in such cases the subordinate is given no choice as to which task he is to work on. The interrupted task does not remain his accountability for the period of the interruption—and indeed may often be reallocated to someone else.

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**Successive Approximation [bracketing]:** *technique of helping a manager who is being interviewed to state in explicit terms the limits of target completion times and standards of quality, by posing to him times and standards which are grossly below and above the probable limits, and then helping him to focus upon the actual times and standards by posing a succession of figures between the wide starting points.*

For example, if a manager is not sure how long he has set his subordinate for the completion of a project, ask him whether he has set, say, one day or, say, ten years; then help him to focus by successive questions, first narrowing down the area of the time set, and then finally pinpointing the actual time.

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**Target Completion Time:** *the time set by a manager—either implicitly or explicitly—by which a task must be completed.*

Target completion time is not simply the time by which a manager says he might like to have something done. It is the time beyond which he would not find it acceptable for the task to be completed. It marks the outer limit of time within which a subordinate can make plans, as he begins a task, for the progress and completion of that task.

Target completion time may differ from the actual completion time, since the task may be changed once it has been undertaken, or it may just be late. Target time may be changed subsequently by the manager in the light of developments, but in so doing he is changing the task he assigned.
**Task:** a discrete unit of work with target completion time and quality standards, either given by a manager to a subordinate explicitly or implicitly, or generated by a general accountability.

A *task* has the character of an instruction to do something specific, to reach a stated objective: i.e., to “do this”. It differs, for example, from a general accountability which sets the limits or framework within which tasks are to be carried out, and which has the character, “whenever such and such a situation arises, take appropriate action.”

A task always has a target assigned completion time. The target completion times are left unstated and implicit as often as they are explicitly stated. Even though not stated, however, they nevertheless exist, for the manager is always entitled to expect that his subordinate knows by when the manager wants the task finished, or that if he is not sure he will ask.

Looked at another way, if the subordinate does not know when a task is to be finished, no task can be said to exist. A task without some completion time beyond which the manager would be dissatisfied has no priority, no urgency. It does not matter. It has no existence in the executive sense.

Tasks may be assigned quite specifically by a manager to a subordinate. Or they may be implicitly assigned by means of general accountabilities, as, for example, in the case of subordinates who provide services; in such a case, the instruction has the character, “when authorized persons request you to carry out authorized tasks, act as though you were receiving the instruction from me.”

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**Task, Part-:** a part-task is one complete bit of a task which is made up of a number of such discrete bits.

Many tasks are composed of an aggregate of parts; for example, a task of typing 27 letters, or of machining a batch of 800 metal links. Each part is a discrete bit, in the sense that it does not constitute one inter-locking feature in a total task as in the case of a sub-task. And there is only one task, not a series of tasks, since each part is set aside when complete, none of the parts being handed over until the whole task is complete.

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**Task, Sub-:** a sub-task is one element in the carrying out of a task, determined by the person doing the task, which interacts with other elements in the sense of being required for the other elements to be done, the various sub-tasks which must be planned and progressed in relation to each other.

The important difference between a task and a sub-task is that tasks are assigned by a manager, either directly or through a general accountability, whereas sub-tasks are worked out by the person doing the task. He establishes his sub-tasks as part of the means he will use to complete his task, determining when he shall start and finish the sub-task.

For example, in carrying out the assigned task of making contact with a new customer, a salesman may plan sub-tasks of studying the customer organization, of trying to meet the assistant buyer, etc. Or a toolmaker may decide on the sub-tasks of fitting certain small parts together into a number of minor sub-assemblies, before working on larger sub-assemblies, etc.
Although sub-tasks require planning and progressing, they differ from a program of tasks in a multiple-task role, because the tasks in a program have been assigned and must be handed over on completion.

In the terminology of the Critical Path Method, sub-tasks are activities leading to Events, and tasks comprise all the activities through to the Objective Event.

If the person carrying out a task is himself a manager, he can allocate his own sub-tasks to his subordinates, for whom they will in turn constitute tasks.

**Task, Continuous:** *a continuous task is one which is assigned to be worked upon without interruption for any other tasks until completion.*

Continuous tasks make up all the work in single-task roles, and part of the work in multiple-task roles.

**Task, Intermittent:** *an intermittent task is one (always in a multiple-task role) which is worked on from time to time until completion, other tasks being worked on in the interim periods.*

The interruptions in intermittent tasks may be waiting time while a customer is making up his mind, or periods when work has been handed over to subordinates, or waiting for sub-contractors to provide estimates or parts, or simply periods when a task has to be set aside while more urgently required tasks are worked on.

**Task, Extended:** *an extended task is one in a multiple-role, whose target completion time is later than all previous tasks.*

This definition is illustrated in the accompanying diagram 2, which shows a succession of tasks, some of them continuous and some intermittent. In this diagram, Task 1 and Task 16 are extended tasks. The completion time of each is later than all previous tasks.

Between the extended tasks, all the tasks are targeted for completion before the extended tasks. In carrying out these shorter tasks, therefore, it is possible to borrow time to some extent by putting off work on the extended tasks for the time being.

The extreme limiting case used for the purposes of measurement is that of achieving satisfactory quality but working just marginally too slowly—borrowing just enough time from the preceding extended task to complete each succeeding task, as to make the completion of the extended task marginally late.
Tasks, Program of: *a program of tasks is a number of tasks in a multiple-task role, some of which are intermittent tasks, which the subordinate must plan and progress all in relation to each other.*

Tasks, Series of: *a series of tasks is a number of tasks assigned at the same time, with the instruction that they be carried out one at a time in a prescribed sequence, each one being handed over as it is completed.*

A series of tasks can be assigned into a single-task role without changing it into a multiple-task role. For by prescribing the sequence, the manager leaves the subordinate no choice as to which task he shall be working on at any given time (the starting and finishing times are fixed automatically by the fact that each task has its target completion time). He cannot borrow time from one task in order to complete another, since he must hand each task in as he completes it, and is not authorized to leave any tasks in abeyance.

Task, Sequence: *a number of tasks under delayed review in a single-task role, which are carried out in succession before any one of them reaches a review point. (The review may be direct or indirect.)*

In the accompanying diagram 3, from Task B to part-way through Task F is a task sequence. None of the tasks is subject to review until Task E reaches its indirect review point. The sequence of work, therefore, from Task B to Task F is carried on without any of it being reviewed for marginally sub-standard quality until that point.
Time-Span of Discretion: the longest period which can elapse in a role before the manager can be sure that his subordinate has not been exercising marginally sub-standard discretion continuously in balancing the pace and the quality of his work.

This period in effect gives the maximum period during which the manager relies on the discretion of his subordinate, and the subordinate works on his own account.

In single-task roles it is usually marginally sub-standard quality at standard pace which gives the longest time-spans, whereas in multiple-task roles standard quality at marginally sub-standard pace can go on longest before emerging for review.

It would appear that managers intuitively sense time-span in allocating differentials in payment to their immediate subordinates.

Wages Index: the index of weekly rates of wages, drawn up by the British Ministry of Labour, which measures the average movement from month to month in the level of full-time weekly rates of wages in the principal industries and services in the United Kingdom compared with the level at a given base-date (at the time of writing, compared with the level at 31st January 1956 taken as 100).

The index is based on the recognized rates of wages fixed by voluntary collective agreements between organizations of employers and workpeople, arbitration awards or Wages Regulation Orders. The index does not reflect changes in earnings due to such factors as alterations in working hours, or in the earnings of pieceworkers and other payment-by-results workers due to variations in output or the introduction of new machinery, etc. The figure used in the current work appears in The Ministry of Labour Gazette, Wages and hours of work, sub-section “Weekly Rates of Wages,” in the table “All Industries and Services,” in the column “All Workers.”

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6 Equivalent indices are generally available in other industrialized nations.
The wages index gives the most general baseline against which the relative position of earnings can be gauged in the payment hierarchy.

**Waiting Time:** *a period in an intermittent task in which the individual to whom the task has been assigned is not himself actively engaged in working on it, but during which he nevertheless remains accountable for the task.*

There are many circumstances which cause waiting time, such as waiting for a service or for a subordinate to complete his part of a task, or for information from someone or for a reply from a customer or supplier, etc. Such enforced breaks in work on a task constitute waiting time if the individual doing the task remains accountable for it during such periods. That is to say, he would be accountable for chasing up a reply, or checking upon his subordinates, or putting pressure on a supplier or a sub-contractor, etc., if he judged the waiting time to be going on for too long.

These interruptions are to be contrasted with interruptions which may occur in, for example, a single-task role, where any assigned task is, say, suspended or otherwise held up and the manager takes the task away from the subordinate and gives him another task to do, the manager himself being accountable for the waiting time on the interrupted task. (See also: Task; Task, continuous; Task, intermittent.)
Measurement of Time-Span of Discretion in a Role

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Concept of Time-Span of Discretion

The essence of an assignment in managerial organizations is that a subordinate is expected to use his/her capability to overcome the un-anticipatable obstacles that inevitably arise in working towards a goal.

The time-span of a role can be thought of in terms of the longest periods of time during which a subordinate’s tasks require him/her to be using his/her discretion in coping with the inherent uncertainties and complexities of each task.

All work requires that the individual doing the work must continuously balance the pace at which he or she is working and the quality of the output produced; i.e. must work just quickly enough and just well enough: not so quickly as to produce substandard quality; and not so preoccupied with quality as to be too slow.

Single-Task and Multiple-Task Roles

There are two types of roles in managerial hierarchies:

• **Single-task**: A subordinate is assigned only one task at a time.

  It is only when each task is completed that the subordinate gets the next task to do.

  (Covers the case where a subordinate might be given two or more assignments at one time, but is told the order in which they are to be completed.) Most Str-I roles are single-task.

• **Multiple-task**: A subordinate has two or more tasks on his/her plate at any given time, many of which are discontinuous in the sense that they cannot be completed at one go.

  The person is faced with the problem of ensuring that all discontinuous tasks are progressed so that each one is completed to quality standards and on time.

  Nearly all roles at Str-II and above will be found to be multiple-task.
General Procedure

Interview the immediate manager to explore the actual tasks that the manager is assigning to the subordinate. It is the manager, and only the manager, who decides the QQT/R—quality standard (Q), quantity (Q), target completion time (T) and resources (R)—of these assignments.

The immediate manager’s decision about QQT/R for any particular assignment is an objective fact; however the manager might have arrived at that decision.

Where possible, it is useful also to interview the subordinate to get his/her picture of the assigned tasks. Any discrepancies between the manager’s stated assignments and the subordinate’s understanding of these assignments can be used for further clarification of the role.

In the case of a newly established role, or a vacant role, the immediate managers should be asked about specific examples of the types of tasks he/she intends to assign to the role.

An official time-span measurement (validated) is complete only when the manager’s own manager has agreed that the tasks being assigned are in fact within the manager’s authority (terms of reference) to assign. This segment is of special importance in the case of new and currently-unfilled roles.

Procedure for Multiple-Task Roles

The time-span of a multiple-task role is measured by finding those tasks assigned to the role that have the longest target completion time.

Explore with the manager three types of assignment:

- work for which the role has been established;
- special projects, e.g. improvement or development projects;
- staff development (managerial roles), e.g. target time for induction of new subordinates to the point where they can function independently; or for special staff upgrading projects.

Problems establishing target completion time—“Review” points:

Managers sometimes get confused between their own tasks and those they assign to their subordinates. For example, a manager who thinks he has assigned an 18-month project to a subordinate but it turns out that he/she has the 18-month target, and has assigned only the first phase of 6 months, at which point he/she will review the work and if satisfactory, will then assign a second 6-month task (and finally if all goes well, a third 6-month task).
It is thus necessary to discover for any task whether there are shorter-term full review points or simply in-process review points. A full review point is one in which what has been assigned by the manager has been completed. In the case of a phased project, the manager will then assign a next phase (this next phase might even be assigned to another subordinate). An in-process review is one in which the subordinate gives the manager a progress report from time to time and difficulties are discussed, but the subordinate is left to go on towards completion of the project without the manager’s having signed off on progress to that point.

In the full review situation, the subordinate is authorized and required to plan the project development only to the review point; in the in-process review situation, the subordinate is expected to plan and progress the project to an end point beyond the in-process reviews.

In establishing a precise target completion time, it is often useful to employ a successive approximation (bracketing) procedure where the manager is unsure about the target completion time for an assignment (“can’t tell how long it will take” or “finish it as soon as possible,” etc.)

In carrying out this procedure, it will be useful for you to inform the manager that for the purpose of the inter-view you are going to behave as though you are the subordinate whose role is being time-span measured.

The following is an example of this type of interview:

**Q:** Denotes questions asked by the interviewer, *who is acting as the subordinate.*

**A:** Denotes the manager’s answers in response to the questions asked by the *interviewer-as subordinate.*

Therefore, the interviewer asks,

**Q:** “What is my name for this interview,” and proceeds to act as though he/she was “Bob” or “Jane” or whoever occupies the subordinate role.

**Q:** “Perhaps you could give me an idea of the kinds of tasks or assignments you are giving me (Bob) to do.” —Get examples.

**Q:** “What would be an example of a task that would have one of the longest target completion times?” —Get an example.

**Q:** “By-when would you set as a target for me to complete the task?” —Get an answer in terms of a by-when: for example, “18 months.”
Q: (Bracket upwards): “If I said to you that I thought 18 months was too short and asked for five years, would you give it to me?” —The art is to pick a target time well above the one offered; it helps the manager to focus by contrast.

A: “Absolutely not.”

Q: “Would you give me 4 years?”

A: “No!”

Q: “Three years?”

A: “Mmm . . . (hesitates). No!”

Q: “Two-and-a-half years?”

A: “Mmm . . . maybe . . . mmm . . . but no!”

Q: “Two years and three months?”

A: “All right. That probably would be just okay. But no longer.”

By this process you have discovered that the target completion time is no longer than 2 years, 3 months. But it might be less than this if there are discrete phases. So ask the following additional questions:

Q: “Are there any shorter phases into which this assignment is broken up? Not, for example, in-process-reviews, in which you review progress to ensure that things appear to be progressing satisfactorily, but a distinct stage which has been targeted for completion in its own right, before a next stage will be assigned?”

A: “I think so. You mean that I have required you first of all to carry out a full-scale preliminary evaluation within six months, at which point I would then decide how to proceed with the project itself?”
Q: “That sounds like a separate stage. Will I have to limit myself to completing it? Or are you expecting me also to start up other parts of the process because they have to be got underway from the start, but are not parts of the preliminary evaluation?”

**Possibility One:**

A: “Oh no, only the evaluation first!”

This reply signifies that the evaluation is an initial six-month task, as against a reply such as the following which would signify that the six months is only an in-process-review and not a separate stage.

**Possibility Two:**

A: “Oh absolutely. The preliminary evaluation is only to facilitate budgeting. But you will have to get a lot of other things underway in order to prepare for other milestones much later on, while you are also doing the evaluation.”

Whether the 6-month assignment is a stage, or whether it is not, proceed to discover if there are any subsequent stages. If no stages, then you have a 2-year plus assignment. If there are stages, ascertain the longest.

**Continue this process by asking if there are any longer-targeted assignments in the role, and repeat the procedure for each one.**

An alternative illustrative scenario could have been that the manager replied to the question about two years and three months:

“Oh, no, as a matter of fact, I really wouldn’t give the full two years. Perhaps somewhere between one and one half and two years; say, 21 months.”

The point is that this method of questioning helps the manager to pinpoint just what is the by-when that he or she has actually targeted.
Diagram 1 illustrates how it is that in a multiple task role, the task with the longest-targeted completion time sets the longest possible period during which a manager has to rely on a subordinate’s judgment.

If the subordinate uses substandard judgment on quality, it will often turn up at the completion of the very short tasks. If the subordinate is maintaining good quality by being too slow, it may not be evident for some time.

In diagram 1, the beginning of B to the completion of B gives the longest task sequence.

The subordinate can “borrow” against task B as necessary to ensure that all the concurrent tasks in role are carried out by the target times. But eventually B has to be completed, on time if possible, and to quality standard.

The variables that the subordinate has to cope with are therefore the summation of all the variables in the whole of the “task basket” from B to K.

Diagram 1: Time-Span Measurement of Multiple-Task Roles

Key

Completion of task
Task completed in one go
Task completed in a succession of actions
Procedure for Single-Task Roles

The time-span of a single-task role is measured by the longest sequence of tasks that can occur before the manager will inevitably get feedback if marginally substandard quality work is being done.

The following Diagram 2 shows why this conclusion is so. If the subordinate is working marginally too slowly, that fact will turn up at the completion of each task, or at least because of the accumulating lateness in the course of a few tasks.

As is shown in Diagram 2, however, it is possible for substandard judgment to be exercised for an extended period of time before any of it will reach the manager’s attention. How this delay occurs is illustrated in the interviews that follow.

**Diagram 2: Time-Span Measurement of Single-Task Roles**

Examples of single-task roles:

- **Stratum I**
  - Truck mechanic
  - Environmental technician

- **Stratum II**
  - Cost analyst
  - IT analyst

In this Batch work the Review of Discretion is Indirect

**DEFINITION: Indirect Review of Discretion**: indirect review is review of discretion which takes place not as a specifically organized act of review by the manager, but through the inspection or use by others of the results of the task, in such a way that if the results were marginally sub-standard this fact would be noted and reported to the manager.

The longest task-sequence in the illustration is B to F (review point) because E is the first review point for tasks B - F. The manager may decide to review B, C and D and F when E is reviewed if E is found to be substandard in quality.

*The procedure is to explore with the manager a number of actual task sequences.*
Plot the successive tasks with target completion times, and then plot for each task the longest time that could elapse before the manager could rely upon feedback if marginally substandard quality work was being done: the quality review point.

Examples of such review points would be:

- independent inspection during the task or at the end of the task;
- independent inspection at a later stage in the process;
- impact upon a subsequent operation;
- final inspection;
- customer goods inward inspection

The questioning might flow as follows, after establishing, as in the case of multiple-task roles, that you the interviewer are taking the role of the immediate subordinate of the manager being interviewed.

Q: “What role am I in?”
A: “You are ‘Bob,’ a detail draftsman, making up job tool drawings from a works order, to be used in the tool room for making the tools.”

Q: “Am I in a single- or a multiple-task role?”
A: “What do you mean?”

Q: “Do I have one thing to do at a time; that is to say, do I finish each task completely before I start the next? Or do I have a number of tasks in process at the same time?”
A: “Oh, no. You only have one at a time. You have to finish each drawing before you can possibly start the next one.”

Q: “What kind of judgment do I have to use?”
A: “You don’t have to use any. It’s all routine. But you can make mistakes by failing to follow the rules.”
Q: “I see. So I just follow the rules, and nothing is left to my judgment, even how quickly I work?”

A: “Oh, no. It’s not quite like that. You have to get on quickly enough, but not so quickly that you start making mistakes.” (Note: This kind of balancing of pace against quality is part of all work.)

Q: “But there’s nothing else that would matter to the production people?”

A: “Oh, I suppose there are some things. You have to figure out how to lay out your drawings on the page so that they are convenient for the tool makers to follow. And then there are lots of small details like whether to provide for tightening of screws by screw drivers or Allen keys, and so on, that make the tool easier for the operators to use.”

Q: “I see, and suppose I was using just marginally substandard judgment, how and when would that show up?”

A: “Oh, I would catch it. You see, I check all your drawings carefully myself before I send them down to the tool room. If I find any substandard work, I will amend it myself, or give it back to you to do.”

DEFINITION: Direct or Immediate Review of Discretion: review by the immediate manager (or by someone acting on his or her behalf) of the discretion exercised by a subordinate in carrying out a task, as shown in the completion time and the quality of the result.
EXAMPLE 1: Direct or Immediate Review of Discretion

He then discovered that the longest drawings Bob could get to work on were 40 hours, or one week.

The discovery of a one week targeted completion time led to the chart in Diagram 3.

From this chart it may be seen that the longest periods over which Bob can go on exercising judgment unchecked is one week, as in the case of assignments A and E.

EXAMPLE 2: Indirect Review of Discretion

As an indication of what can happen in time-span measurement interviews, at the end of the above interview Bob’s manager said that something had occurred to him:

He had another subordinate, Betsy, who was very reliable and experienced and whose drawings he sent directly to the tool room without checking them. [Indirect Review of Discretion.]

Under these conditions substandard work might possibly not be discovered until the tool was made, sent to the production shop, and its shortcomings discovered in use. This point could be as much as 6 weeks later.
In this case, Diagram 4 shows that the longest sequence of unchecked drawings could be up to 6 weeks—comprising tasks A through F to part of G—a longer time-span and a heavier accountability than Bob’s role.

**Diagram 4: Single Task Role: Drawing Office Time-Span, 6 Weeks (A to F thru part of G) - Betsy
Indirect Review of Discretion**

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**Definition: Level of Work Range:** the range of level of work in a role, from the minimum level below which the manager could not get all his work done, to the maximum level which the immediate manager has been authorized to delegate to the subordinate in the role.

**EXAMPLE 3: Indirect Review of Discretion**

This second example (Betsy) contrasts with Bob’s role, but is similar to another single task role, that of Jim (Example 3) who was carrying out a lathe operation in the production of certain engineering components.

If Jim were using just marginally substandard judgment, such as machining the component consistently too close to the upper or lower limit of tolerance, which would not show up until the component got to the finished grinding operation, at the very earliest 2 weeks later.

The interview process that elicited this information took the same form as that for Bob’s role, which is outlined on page 7. Jim’s role was charted in the following form (Diagram 5).
Examination of Diagram 5 will show, for example, that beginning at task A, Jim would have completed tasks A, B, C, D, E, and part of F, over a period of 5 weeks, before any of the work he had done would have reached the review point at finished grinding—a time-span of 5 weeks if further analysis showed this to be the longest sequence in Jim’s role.

Note that in single-task roles, in which a single task is repeated, the review point of any one piece of output is an Indirect Review of the judgment and discretion being used to complete each instance of the task. The review of one piece of output indirectly reviews previous output for the judgment used, for example, in machine settings, sharpening of tools, adherence to specifications, etc.

A Different Type of Single-Task Roles:

There is finally a class of single task roles that are very important but at first sight seem to be of very short time-span; as for example, the operators at the control console of nuclear reactors, or air traffic controllers or commercial airline pilots, or police department dispatchers.

The common initial reaction is that the critical feature of such roles is that of preventing catastrophes—a nuclear meltdown, or an airliner collision or crash, or a murder or a riot. Given this view of the role, review points seem to be almost instantaneous or perhaps some hours or days away.
Such a view is incorrect in a very important respect:

None of these roles is assigned any authority to exercise judgment that can cause a catastrophe.

Catastrophe avoidance is supposed to be contained by specified procedures based upon fixed systems of technological control or rules and regulations that give right-wrong, black-white, go/no-go, controlled actions.

In such roles, it is important to explore clearly and explicitly, what judgments can and must be exercised which can have significant effects, but not the catastrophe that could result from a control system breakdown.

This approach will take you into a world of:

- the passenger discomfort and dissatisfaction that could result from myriad airline pilot decisions, or
- the increasing lateness of plane landings because an air traffic controller is marginally too careful and takes 61 seconds per plane landing instead of the scheduled 59 seconds, or
- the unnecessary operations generated by a marginally less-than-attentive nuclear console operator, or
- the slight over response of a police dispatcher to the seriousness of calls coming in.

To get hold of such information, it is necessary to question the manager carefully in terms of what could be the effects of such marginally substandard work. The effects of substandard work may not come readily to mind because it rarely occurs. Staff of this kind are so carefully trained and committed that they use effective judgment and prevent the possible consequences.

Once you have discovered the judgment and discretion that has to be exercised in the role, and the consequences that would follow upon marginally substandard judgment, you can take the final step.

The final step is to inquire about the systems that exist for showing up the consequences of any marginally substandard judgments and decisions that were made—such as passenger complaints, or slightly excessive demands made upon services, and carry through the analysis of the longest possible sequences of undetected marginally substandard work.
Rationale of Single-Task and Multiple-Task Time-Spans

- Time-span of a role can be objectively measured as described.
- These role time-spans have been discovered empirically to give a measure of experienced weight of responsibility.
- Roles with the same time-span “feel” about the same “size” regardless of occupation. They feel as though they are increasing or decreasing in “size” if the time-spans are increased or decreased by changes in tasks assigned.
- They elicit the same “felt-fair pay” responses in a given common economic region, and they elicit the common 3M, 1Y, 2Y etc. boundaries for managerial strata, regardless of culture.

The question is, however, why is it that time-span seems to coincide with experienced “weight of responsibility” (or more accurately, with experienced level of work)?

It is suggested that the significance of the time-span measure is that it gives a measure of:

- the longest period of time that the subordinate has to exercise continuous discretion in balancing pace against quality in producing a satisfactory output; and therefore,
- the longest period of time during which the manager has to rely upon the subordinate’s discretion (judgment and decision); and,
- the longer these discretionary periods of time, the greater is the complexity of the work in the role that the subordinate has to cope with.

In the illustrated multiple-task role (Diagram 1), from the beginning of B to the final review of B gave the longest task sequence, in that the subordinate can “borrow” against task B to ensure that all the concurrent tasks are carried out satisfactorily. But eventually B has to be completed, on time and to quality standard.

The variables that the subordinate has to cope with are therefore the summation of all the variables in the whole of the “task basket” from B to K.

In the illustrated single-task roles, by contrast, it was shown that the longest task sequences are determined by the point at which marginally substandard judgment with respect to quality becomes evident to the manager, either through direct or indirect review.

The reason for the differences between the time-spanning of the two types of role, can thus be seen to be that in multiple-task roles you can borrow against time. Your manager will have to rely upon you to complete many tasks until you finally complete your longest one, before any marginally substandard work becomes evident.

By contrast, in single-task roles your manager will have to rely upon you to work away on successive series of tasks that fall between quality review points.
The **common feature**, therefore, is determining the absolutely **longest series of tasks** that you are required to carry during which your manager must rely upon your judgment.

The length of such series is determined by a combination of two factors:

- first, whether or not you complete each task without a break; and
- second, the length of time before your manager may find out whether you have been working quickly enough and well enough in quality.

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**Addendum: Examples of Measured Time-Span**

The following are some examples of the longest tasks found at various levels in a number of occupations:

**Accounting**

At higher level, accounting development projects and the development and organization of accounting departments. At intermediate levels, maintaining the monthly and annual accounts, often with a longest task of fifteen months. On the costs and works side, projects concerned with budgeting and the revision of budgets. Credit control projects concerned, for example, with reducing the average point of payment of accounts.

**Buying**

At higher level, not so much the act of buying itself, but the act of developing suppliers. At intermediate level, purchases being negotiated one year to two years in advance with accountability for progressing them and ensuring that the goods are received when scheduled. At Str-II, the longest task may be found in connection with the negotiation and progress of purchases within the three-to-twelve-month time limit.

**Personnel work**

The higher-level tasks concern special projects in recruitment, selection, organization and training, such as a training/development program for all managers in large organizations, with shorter projects at lower levels.

**Product development and research**

At higher level, translate capital authorization into programs of interconnected research and development projects assigned to subordinate managers to carry through. At intermediate levels, the direct conduct and management of assigned research programs.

**Production management**

At higher level, projects of two, three, five years for major changes in plant or equipment, or more in dealing with local authorities and outside building contractors on civil engineering construction in connection with building or rebuilding for the accommodation of a new plant. At department level, Str-III managers are concerned with changes in plant and equipment and method, without the responsibility for rebuilding and civil engineering. At first-line level, Str-II tasks in connection with the staffing of sections for the purpose of keeping production underway.
In production engineering, chemical engineering, food engineering, mechanical engineering, etc. Projects aimed at the specification, design and development of new manufacturing methods, including the design and specification of the machine tools, continual-flow-process equipment, large chemical plants, food manufacturing equipment, etc.

Programming and production control
At higher level, projects concerned with either the development and programming of new production methods or with the forward planning of capacity requirements in connection with business expansion or business multiplication plans.

Sales
At higher level, development of new markets or of contact with new customers or the launching of new products, or the carrying out of very extended sales negotiations. At mid-levels, development of specific new large customers or customer networks, or time for regular covering of a territory, or date for achieving a given increase in sales.

Further Reading

To purchase these books and others by Dr. Elliott Jaques, please go to the Requisite Organization Library™ bookstore at [www.casonhall.com](http://www.casonhall.com)

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