• CRITICAL PATH PLANNING

• LAND PLANNING

• MANAGEMENT CONSULTING

• PLANT LOCATION

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August 18, 1978

Mr. J. W. A. Gleason, Manager
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Dear Mr. Gleason:

As we discussed recently, I have given a great deal of thought to how you, your staff and Chrysler can make continued improvements in their management of projects. Project work seems to break into four basic activities (although I do not want to eliminate, by any means, addition of others). These seem to be:

- Planning
- Monitoring
- Controlling
- Correcting

not necessarily exercised in that order or priority. It appears to me that if we are to discover and bring into existence an excellent project management system for Chrysler we might best start by considering these four elements and build around them the discipline needs required for high levels of execution.

In this memo I shall take the liberty of referring to the handout material that I left with you the day that we met and discussed the program. I have a similar packet here, arranged, I believe, in the same order, and I have numbered the sheets from 1 through 35 with the Line of Action being the 1st sheet and the page 12 of 12 on the glossary being the last sheet. It would assist greatly in our discussion by letter if you would number yours in the same fashion. Just as checkpoints - Project Management - An Exploratory Look is page 8; the suggested bibliography is

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page 22 and page 23; the sixth page in of the glossary is page 29 in the set and I am sure that as we go through I can reference in titles of the other sheets so they can be easily located.

Because the subject of our consideration is so complex, I am merely going to try to set out for you a few random philosophical points you may consider at your leisure with the idea that when we get into more discussion depth we will order the material so it takes on continuity and form.

The points below are totally at random (or as much as my subconscious will allow) and are numbered merely for ease of reference. As we get more involved in formation of techniques and sets of ideas specifically for Chrysler, we will probably be grouping the numbers, re-arranging the sequence and expanding the concepts and thoughts expressed in these ideas.

So, here we go....

1) Organization of activities frequently is arranged around some focal point such as an individual, an idea, a discipline, a client, a concept or any object that gives the activity meaning and form. In technical work such as you and I engage in, we very often find activities naturally arrange themselves into projects staffed in a supportive and ex-e'cutive manner by various disciplines.

   Thus, if we are going to build a building, the project is construction of the building; the disciplines are the necessary design concepts, architectural resources, engineering ideas and contractual skills that go to make up the project.

   Without going into historical depth about how project management evolved, suffice to say that most work we as architectural and engineering managers seem to experience today does devolve down to the project denominator. Whether this is good or bad is something we probably should discuss as we try to generate a new approach to the planning, monitoring, controlling and correcting process.

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1) (continued)

If you would like to read more about how the project system has come about, the book - It All Depends - by Harvey Sherman and listed on page 22 is an excellent beginning.

Accepting a starting point that we are somewhat oriented around projects, let us use projects as the springboard by which we can discuss how to effectively track activities at Chrysler.

2) For this initial discussion, let's use pages 8 and 9 - Project Management - An Exploratory Look - to guide our discussion.

The definitions are self-explanatory.

The single question is a keystone, because the answers give a chance to look behind the project and understand a bit more about why some are good and some are bad. I suggest some introspection in this matter.

Let's move to the third part of the paper - What is Project Management? The project work that most of us are involved in seems to revolve around points 1 through 8 on pages 8 and 9. I find the most frequently ignored what-is-it is #1. Objectives are usually fuzzily perceived and inadequately described at the top. Thus, the poor second, third and fourth line manager charged with coming up with a successful program often has never seen or heard of the objectives his bosses perceive as being essential for project success. Although many of us enjoy surprise trips where we don't know where we are going, this is scarcely the case when one is dealing with business and technical projects of large magnitude.

It would seem then that in the planning process, definition of objectives must be a high priority activity and these objectives, in turn, must be clearly defined and outlined to all those who must work on the program. The reason for this can be more easily discerned if the definitions of objectives and goals shown in the glossary on pages 26 and 29 are clearly understood.

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3) Defining objectives, of course, gives a better chance of selecting the proper path to go from now to them. This is where the dynamics of planning take over. Obviously there are hundreds, perhaps thousands or hundreds of thousands of ways by which most things can be done. The good project manager selects effective paths that achieve not only end goals but peripheral and intermediate objectives. In fact, the success of a project manager can often be measured by how effectively he has achieved his peripheral and intermediate objectives. Planning work, of course, as you know, by your brief contacts with me can be effectively done by use of network planning techniques. I have come to truly believe the network system at present offers far and away the best method of describing a profitable way to go from here to there. Often I try to get away from the network system deliberately to test my ingenuity relative to other methods of planning. However, I find that (as biased as I might be about network planning) I seem always to return to it as a natural way of showing what I would like to have done and what must be done.

In any event, let us accept that we must have some set of guidelines that everybody understands that leads us to our objectives and that everybody understands.

We now have the makings (objectives and a plan) of a monitorable, controllable, correctable project.

4) As part of the planning process, we have to make the elements of the program countable. Using a network system, we can quantify with time, manpower, dollars, equipment, space or whatever other resources may be expended in the execution of the program. These elements are important because in a reporting (to up and down) system we essentially measure the expenditure of the resources available against the benefits their expenditure gives us. Have we been able to reach intermediate, peripheral and end objectives that allow an early return on investment? These and other progress oriented questions are usually related to how much of what have we spent?

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4) (continued)

Reporting effectiveness can be most simply (and elegantly) measured by the relation of what we now have in hand for what we have expended. Is the balance right? In a nutshell, this is what you are trying to determine quickly about the programs you are responsible for and what must be reported to your higher and lower supervision.

5) Organizations of structures are important but, in my opinion, at this point and relative to what you are after, they can occupy a coasting position since in our discussions so far indications have been that measurement of results and grading of the benefits are your prime concern. Organizational structure merely helps achieve a successful program and thus, occupies a separate discussion position.

6) After we have assembled the resources and gone to work, we need a management by exception system by which deviations from our standards of performance (the objectives and the plan) are isolated quickly and trigger signal sounding and arrows pointing. Today we are often bogged down by excessive disguised program reporting designed to obscure true positions. The disguise oftentimes is unintentional but stems from the fact that most of us try to hedge our statements so if there is something haywire, we have escape hatches by which we can flee. However, in the truly competent manager's book, he must, at least to himself, understand a problem is a problem; a solution is a solution and success may mean finding solutions to problems but even more importantly that the problem has to be clearly identified.

If you, for instance, are reporting on one of your building projects to your upper management and your signaling system says to you as you write the report - "here is a deviation - do something about it" - - you should solve the problem yourself if you can, but you must also have the option of involving your higher or lower management in the solution should you desire and should they wish. This involvement will be much more effective if you have clearly identified the deviation and can truly benefit from higher/lower management input. Thus, a good management by exception signaling system goes hand in hand with perceived goals, proper plans and effective management by exception (MX).

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7) The rest of the material on page 9 is of interest and could be elaborated upon but from here we should probably move to other topics since we now have broadly outlined the needs that you seem to have identified as important in generating a good planning and reporting system.

Looking at a picture of a project on page 21, we can see that although the program passively is composed of resources, objectives, translations, plans and monitoring, controlling and correcting, all intersecting or related to each other, active relationships do not occur until the feedback loop begins to flow. The feedback carries information, materials and ideas from stations to stations. It also tends to flush out the system and removes impurities that cause dysfunctions. Your job as a manager of one or many projects of a few or several programs is to insure that that feedback system works properly, that the pumps are maintained and that the filtering system is properly tuned.

8) So far we have been very philosophical about what a project is, how the planning, monitoring, controlling and correcting process is integrated with project work and what it is that a well knit system can do. Perhaps it is time to be a bit more explicit. I think that the system we (I) have been using at Chrysler for the past several years is probably a good starting point for the evolution of a truly excellent technique of managerial reporting. It appears from what your needs are that with some improved graphics more dramatic translation efforts and an expansion to the multi project concept that it (the starting point) could very well be the basis of an appealing, and more important, accurate technique for giving your staff and your higher management accurate, up to date, authentic, useful data about all of your programs.

9) The essential elements of such a technique are still the plan, which represents the standard of performance; a monitoring methodology; a manner of controlling the project so what you wish to have happen can be made to happen; and of course, a correction process that takes care of those situations that do not seem to stay managed as you would like to have them managed.

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10) The plan requires a method of planning and application of outstanding abilities.

11) To monitor properly demands that in a complex situation where many evaluations are to be made into a few that Paretos Law must be used to make certain the most important are used for the basis of judgment. (See sheet 18).

12) Controlling the program means controlling key points of the projects. We all know as managers that our best management is done by selecting critical leverage elements and insuring that this leverage is used in a positive and constructive manner to produce effects further on down the line in lesser important areas. This is analogous to the domino effect where a touch here or there starts a string of activities that are effectively carried out by the resources available.

13) Correction uses Paretos Law to identify the most important areas of correction. These, when corrected, then tend to correct other deviations.

14) Thus, it seems to me the starting point for the needed reporting system you have described is an excellent, reasonably detailed program model from which a sound but simplified translation is made (for up and down presentation); and from which impacts, judgments, decisions, controls and corrections can be fed back into the more detailed model without loss of meaning or impact.

The middle translation is what you are presenting to your management and it must allow you and them to grasp status quickly and to communicate ideas rapidly about what is going to happen, what has to happen and what must be made to happen.

15) Thus, I think, in our discussions which we probably will be initiating shortly, we should focus on:

A) The degree of detail and the quality of plan that is prepared for each element of the programs that you are responsible for. Arriving at a proper scale of simulation is critical to success since, of course, the time and effort required increase as the scale of detail increases.

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15) (continued)

B) This is most important; we must focus on translation techniques that most effectively will tell those to whom you are reporting where each of the programs, projects and elements stand without unnecessarily involving them in extraneous detail. This requires expert graphics but most important, a high level of translation psychology.

C) Results of the translation display reaction must be able to be fed back into the original system level so now those managers responsible for each of the elements of the program know what it is that they must do to continue effectively controlling and correcting their work.

16) In our series of meetings, I would like to focus on these three points above, utilizing techniques I have observed and you have observed that have worked.

This is a very broad statement of our responsibility and may even be over simplified. However, I have deliberately kept it at a conceptual level since it is all too easy to, and we will all too quickly, be immersed in the highly technical details of how to accomplish this. We, therefore, must first arrive and maybe even agree about the simplistic psychology of the system and then move to the more complex implementation features.

17) I suggest when we get together at our next session that we take either an actual or fictitious set of programs and begin modeling these with the mutual ideas we can bring to the problem, using A, B, C sequencing. Perhaps the best way to do this would be to take some projects that have already been planned and run some simulations on them at the B and C levels, translation and re-translation.

As emphasized above, I have remained deliberately general in this discussion because we will find it easy to become involved in the technical details if we have a good broad concept outline. Of utmost importance is to determine how to make the translation (B) appealing without loss of validity or interest.

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I am looking forward to our discussions and hope you find the material along with the small handout packet interesting reading.

Have a good vacation.

Ralph J. Stephenson, P.E.

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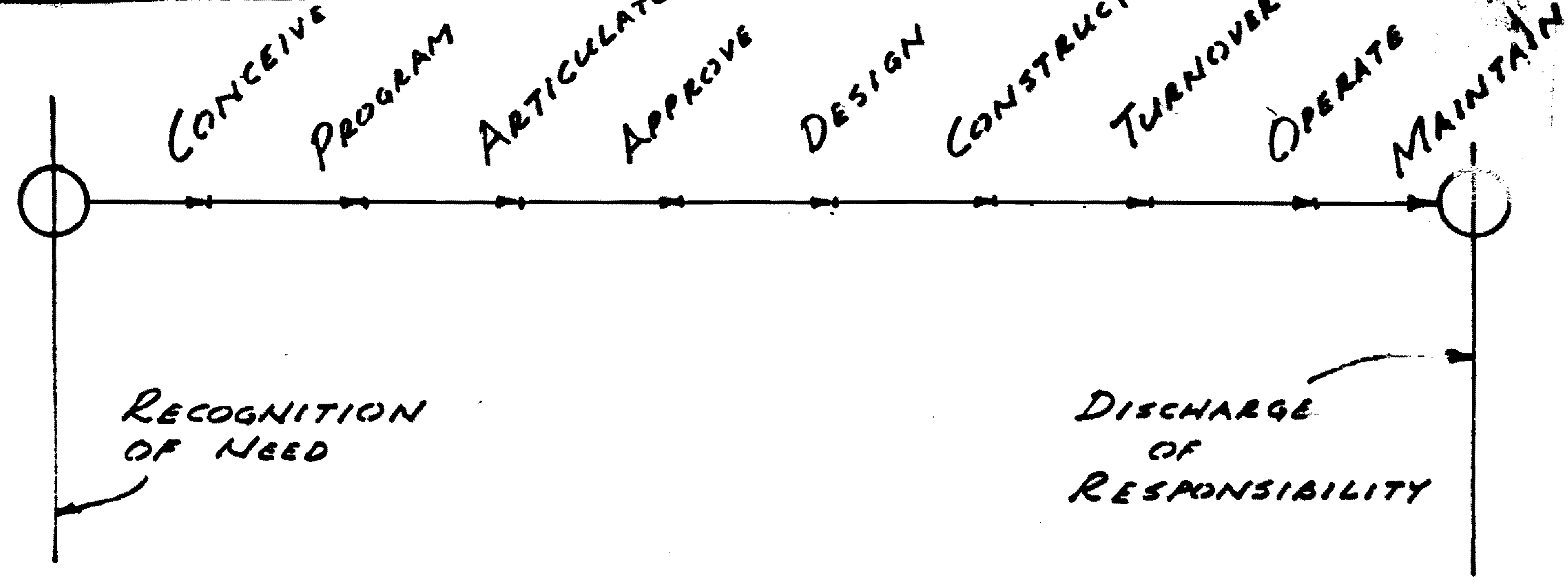

LINE OF ACTION

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Given to Jack Gleason 8/3/78

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ELEMENTS OF THE LINE OF ACTION

The line of action is a simple statement of the range of tasks necessary to conceive, design, build and operate an environment. The line begins at a point referred to as the recognition of need with these actions following:

- Conceive
- Program
- Articulate
- Approve
- Design
- Construct
- Turnover
- Operate
- Maintain

These all culminate at an end point called discharge of environmental design and construction responsibility. A brief description of each step is appropriate in understanding their importance to the total design and build concept.

Recognition of need is the point at which a requirement for a new environment is first felt. The good design build operation tries to become involved in this creative stage. There is a danger of getting in too early and giving away so much of the early work that the job may be lost through over-exposure at a later date. However, recognition of need is the starting point and the sales activity starts here. Taking the points in order -

Conceive - During the conceptual period the need which may be for increased facilities, larger dollar volume, more efficient handling systems or a variety of other demands is visualized and put down in some rough form. It may be a pencil sketch or may remain an idea in someone's mind. Here the project sees its origin and it is this early idea that often carries through the entire project. A good conceptual grasp is essential if the project is to be successfully completed.

Program - During the programming phase, the needs of the concept are put into easily understood tabular form, so many square feet for storage, so many square feet for office, so much height for shipping facilities, etc. The actual physical demands of the environment are set forth in the project program or project bible.

Articulate - Now the concept and program are combined into preliminary construction language. Floor plans are drawn in accordance with requirements. The functional arrangement is shown in accordance with the project bible. Materials are called out in terms of the demands of the concept.

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Approve - This is a critical point in the line of action. By now sufficient work has taken place so the manager can understand the project and say: "I like this or I don't; change this, revise this; let's increase that a bit; let's cut down here." Finally saying: "OK, I'm satisfied with this set of ideas showing the concept and the program - let's move on!" Approval unlocks the design and construction period.

Design - In the design phase, products of the previous four steps are utilized concurrently to prepare a set of working drawings and specifications that translate concept into steel, concrete and space.

Construct - Next, the actual environment is built. Construction is the first point where something major and tangible happens as a result of the concept.

Turnover - When the project has been built, it is turned over with the appropriate operating manuals to the owner or tenant. Turnover is an important step since if done properly, it insures that a valuable commodity, the completed environment, is properly given to those who must use it.

Neglect of good turnover procedures is often the cause of serious callback problems. We certainly wouldn't turn a complex piece of machinery over to an amateur operator and expect he would make it perform 100% right from the start. Neither should we assume that an owner can take a new environment that has just been built for him and immediately operate it at full efficiency. Time should be spent during turnover to explain how this environment is to function.

Operate - The environment is now run-in and begins to achieve its full purpose. Operation can be an important responsibility although the design/build contractor should furnish his operational functions in connection with a new environment only on a paid contract arrangement and provided he is competent to operate the facility.

Maintain - Maintenance of the physical environment is the door opener for future projects. It also assures that the environment that has been nursed through the previous eight stages will be maintained correctly so as to work at its best for those who must use it. The maintenance contract is perhaps one of the least explored areas in the more sophisticated approaches to environmental design and construction.

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The end of the line of action is when the designer and builder of environments has discharged his responsibilities. In a continuing trustworthy relationship, the line of action will have no end since before it is finished, a competent professional will be re-involved in another program at its beginning.

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KINDS OF ESTIMATES

Estimating can be defined as an approximate statement of what would be charged for certain work to be done submitted by one ready to undertake the work. Other definitions have been proposed but they all lead to the conclusion that estimating is fundamentally the art and science of predicting what the total cost actually will be. This estimate classification system takes into account the functional characteristics of the specific estimate to be made. It considers ten elements.

1. Point in time at which estimate is prepared
2. Scale of detail required
3. Estimating methodology
4. Life span covered by costing
5. Data available
6. Ultimate use of estimate
7. Number of elements estimated relative to total
8. Competitive situation
9. Role of estimate in setting final cost
10. Control position occupied

A meaningful classification system results if we assign values or weights to identify the requirements of the specific estimating situation.

1. Point in time at which estimate is prepared

   1) Conceive
   2) Program
   3) Articulate
   4) Approve
   5) Design
   6) Construct
   7) Turnover
   8) Operate
   9) Maintain

2. Scale of detail required

   1) Very rough detail, using general rules of thumb
   2) Generalized combination system in rough detail
   3) Moderate detail by unit or component modified with general historical and current data
   4) Great detail modified with specific historical and detail current data

3. Estimating methodology

   1) Replacement or appraisal technique
   2) Historical unit area or volume figures indexed for current use
   3) Major component costing and assembly indexed for current use
   4) Detailed component costing and assembly indexed for current use

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3. Estimating methodology (Cont.)

5) Detailed time and material estimates of elemental units (individually assembled at time of estimating)

The fundamental difference between component costing and costing from elemental units is that in the first the elemental units are pre-assembled and pre-estimated so that they are not evaluated each time the component is encountered in the project.

4. Life span covered by costing

1) Cost of initial installation only
2) Cost of installation, and short operating and maintenance cycle
3) Cost of installation, and long operation and maintenance cycle
4) Cost of installation, and total operation and maintenance over life of investment

5. Data available

1) Very little
2) Moderately adequate with supplementary research
3) Generally adequate
4) As much as required

6. Ultimate use of estimate

1) Conceptualizing - to gain basic idea of scope - usually very rough figures
2) Comparative evaluation - to measure on an equal basis several elements or combinations, all relative to a common datum
3) Budgeting - to provide a basis for allocating capital funds, maintenance or operating costs or other expenditures on a given program prior to its final design but after its conception
4) Competitive - to give the ultimate decision-maker in an environmental design and construction program comparable, firm values by which he can select all elements of the program to optimize its effectiveness

7. Number of elements estimated relative to total

1) Small part of total
2) Moderate part of total
3) Major part of total
4) Most or all of total

8. Competitive situation

1) No competition
2) Moderate multi value competition
3) Heavy single value competition

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8. Competitive situation (Cont.)

Multi value competition is a relative evaluation based upon several factors such as size, quality of management, experience, present work load and financial strength.

In single value competition, all of these are reduced to a lone evaluation of the ultimate value expressed in the money bid. Such is the case on public projects where the only requirement to be on the bidding list is that an adequate bond be available.

9. Role of estimate in setting final cost

1) To set capital costs only
2) To set financing, operating and maintenance costs only
3) To set all project costs through a specified period of time

10. Control position occupied

1) No control exerted
2) Minor controls possible
3) Major controls possible
4) Total control of program

Much elaboration is possible on control positions. The code suggested is a simplistic approach and in actual use might be modified to reflect to what the control is applied. Control position may extend to labor, material, land, money, design, construction or sub contractors among others.

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PROJECT MANAGEMENT

AN EXPLORATORY LOOK

1 Planning
2 Monitoring
3 Controlling
4 Correcting.

Definition:

Project - A set of work actions having identifiable objectives.

Effective - Of a nature that accomplishes identifiable objectives in accordance with the action plan, and achieves specified peripheral goals resulting from intermediate actions.

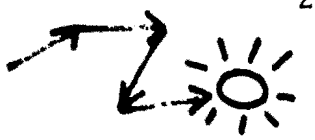
Manage - To direct the application of available resources.

Question?: What is different about project organization as compared to the ongoing parent organization?

1. Project organization is usually temporary (relatively).
2. Project organization may be on a different base than the ongoing parent organization.
3. Project authority positions tend to be vested first and earned later.

What is it?: A project seems to have the following characteristics (features) and requirements.

1. Its objectives must be clearly defined.
2. The desired course of action from start to finish is (and if it isn't, should be) explicitly stated as a standard of performance (if you can't plan it, you can't do it!)



3. The resources required to do each action from beginning to end are identified and made countable.

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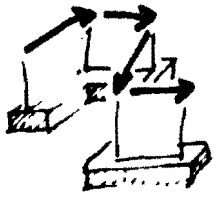
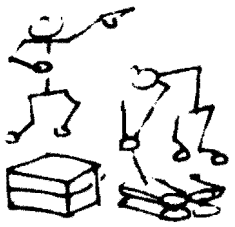
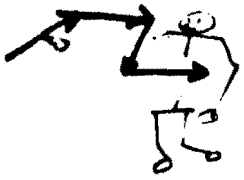


4. An organization structure should be (or is best) built <u>under</u> (not over) the resource framework to give the resource frame quality, continuity and monitorbility.

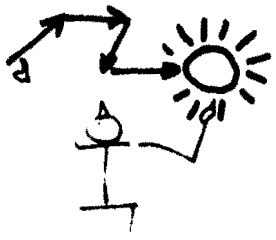


5. The resources needed to do the project can be assembled and put to work.

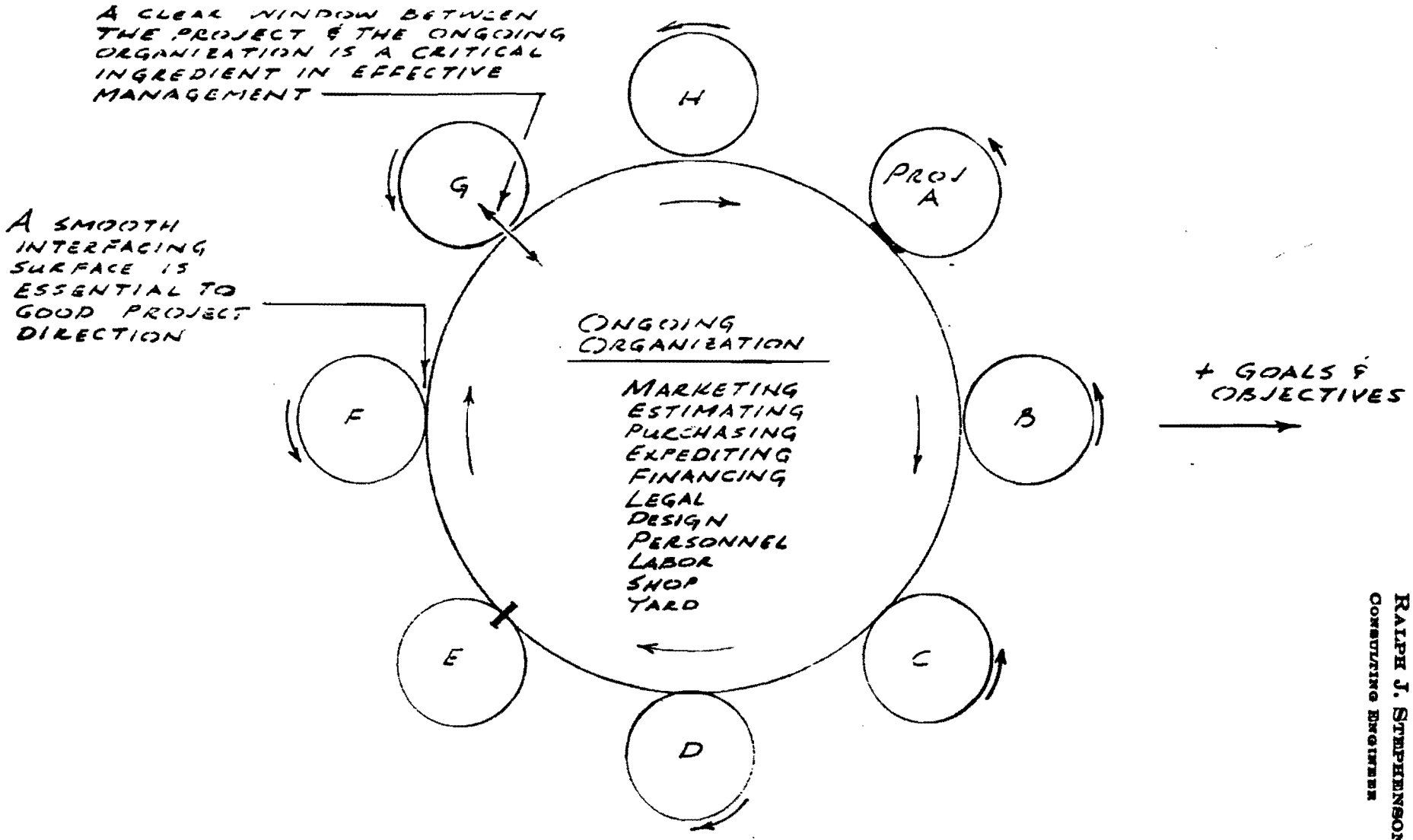


6. A method of isolating, identifying and correcting deviations from the standards of expected performance has to be devised and applied.

7. The performance should be measured to reward competence, and correct and improve lesser efforts as the project proceeds and upon its completion.



8. Outside management (ongoing management) usually sets both the starting and ending of the project.



THE RELATION OF PROJECT MANAGEMENT TO ONGOING MANAGEMENT

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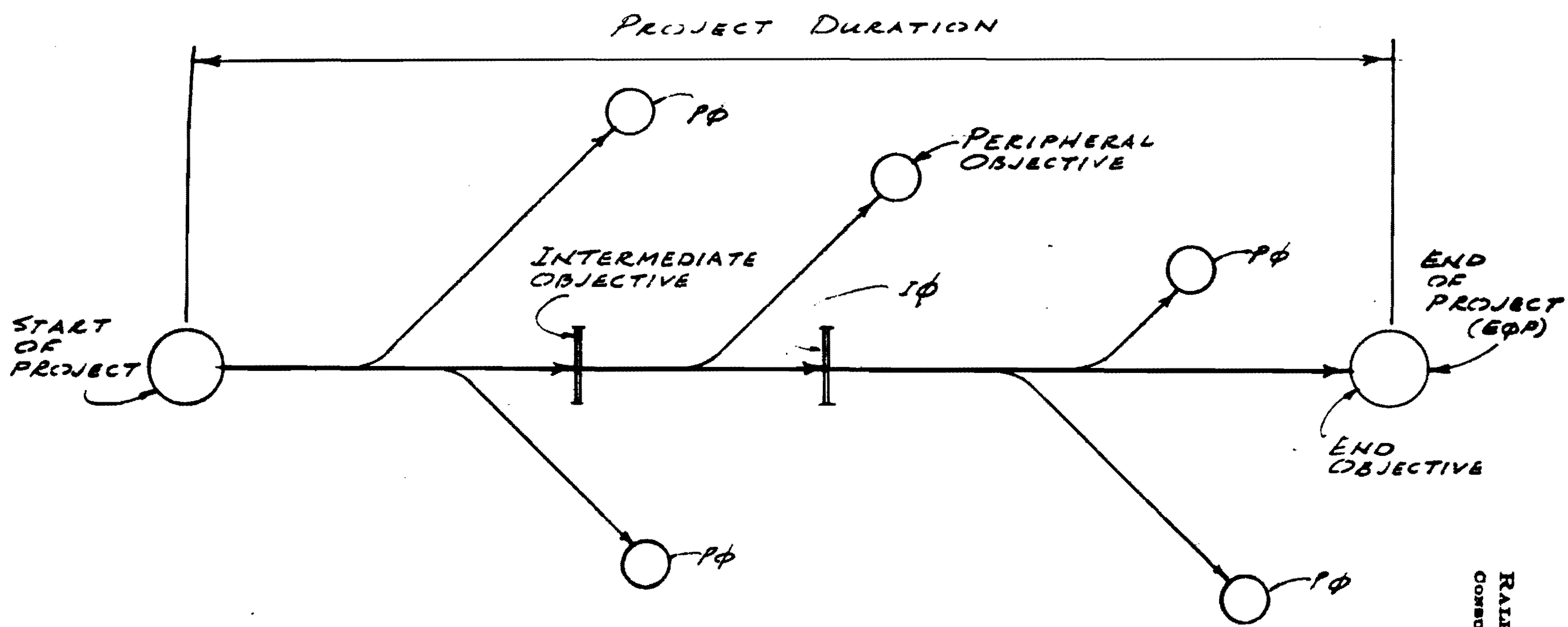

END, INTERMEDIATE & PERIPHERAL OBJECTIVES

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THINKING PATTERNS:

Why plan?..... to evaluate!

Why translate?..... to communicate!

Why control?..... to achieve!

Why correct?..... to maintain!

Why learn?..... to improve!

APPROACH PATTERNS:

1. Improve capabilities
2. Gain control
3. Create - Don't adapt
4. Experiment
5. Expand conceptual grasp
6. Don't deadhead - Keep learning
7. Solve problems
8. Define objectives

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Claim Prone Job Characteristics

During the profiling, proposing and negotiating period, it is often possible to gain a good insight into the expected nature of a job if one is fortunate (or unfortunate) enough to be the successful proposer. The problem job is becoming increasingly serious in our business and professional lives and it should be identified early. The problem job generally results in increased costs during the construction period and quite often requires arbitration or litigation to achieve resolution of costs and damages.

Thus, it is good policy for the perceptive owner, architect/engineer and contractor to become familiar with those characteristics that early identify a job as having potential for being a trouble project.

This list of characteristics is by no means complete, nor is it meant to imply that a job having these features will necessarily be claim prone. It is, on the other hand, an honest effort to state certain unique job features that have been identified in projects that have ended up in litigation or arbitration. The list is at random with no attempt to classify or characterize the features.

Claim prone job characteristics may include:

a. A wide spread in proposal prices.

b. Issuance of a large number of pre-bid addenda and instructions.

c. For subcontractors, a poor general contractor reputation if the project is being built by one prime.

d. For projects with separate primes, poor other prime contractor reputations.

e. More than four to six prime contractors involved(applicable on normal building work only).

f. Poor reputation of architect/engineer preparing contract documents.

g. Excessive how-to-do-it emphasis in contract drawings and specifications.

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Claim Prone Job Characteristics
(continued)

h. Non-liable party involvement in responsible positions, i.e. non-liable construction manager.

i. Large numbers of allowance items.

j. Zero (or excessively small) tolerance specifications.

k. Poorly defined authority and responsibility patterns in the offices of the architect/engineer, the owner, the general contractor or other prime contractors.

l. Inexperienced specialty contractors.

m. Excessive number of pre-selected suppliers for key material and equipment.

n. Large dollar amount or numbers of owner purchased equipment.

o. Location in strike prone areas.

p. Location in jurisdictionally sensitive areas.

q. Heavy use specified for untried products and equipment.

r. Non-liable party involvement in establishing delivery commitments, i.e. construction manager, architect/engineer, owner representative.

s. Involvement of politically accountable owners, architect/engineers or other contractors.

t. Multi responsibility payment structures.

u. Excessively long time periods to award contracts after a proposal.

(Note: This often occurs in public work where many non-project approvals and agencies are involved.)

v. Poor owner reputation.

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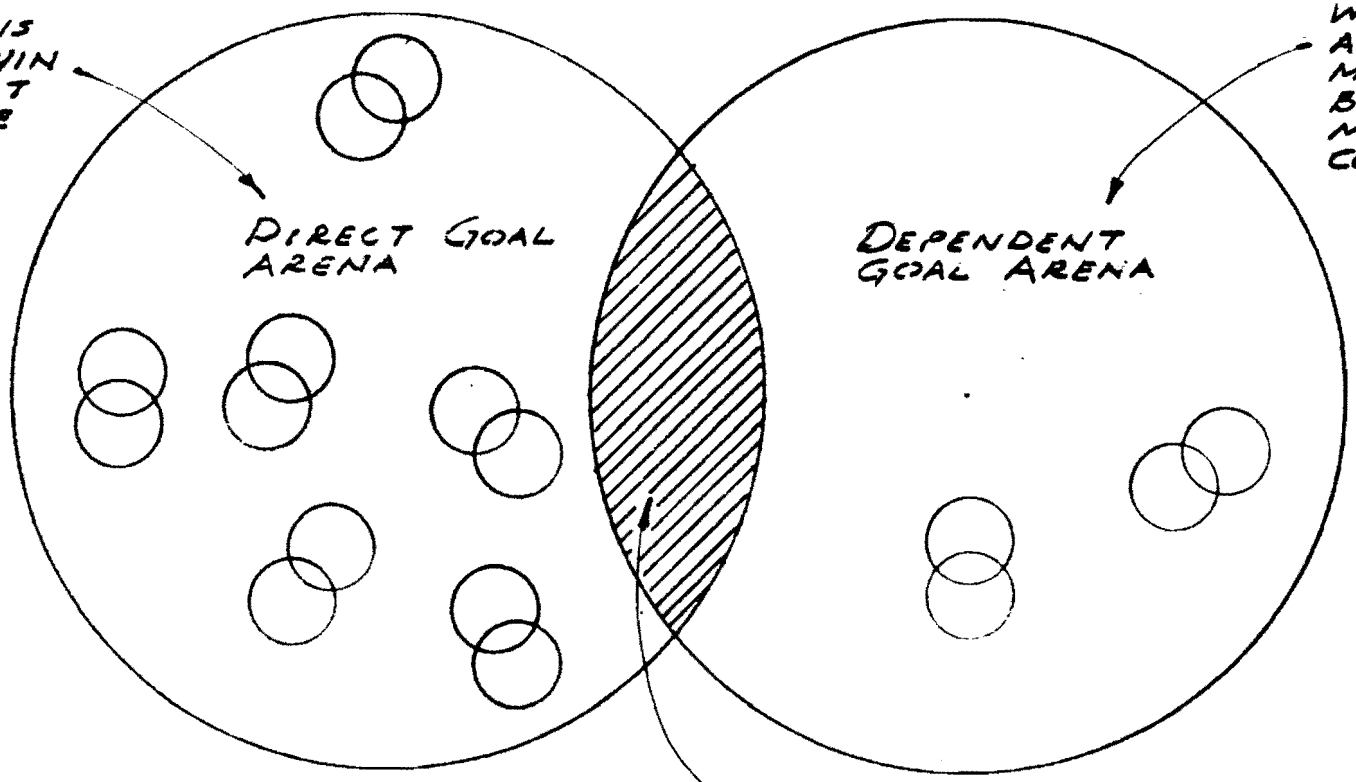

THE DIG/DEG INTERSECTION

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PROFIT POTENTIAL LEVELS

In construction the concept of profit is complex and often misunderstood. There are many kinds of profit - financial, socio-economic, value system, self-actualization, education, enjoyment, technical and probably as many more equally important but less obvious.

If we view the various kinds of returns on investments relative to project management, it appears there are three major levels of profit potential available, that achieved by being certain to consider and include all elements of the project, that achieved by arranging these elements in an effective action sequence and the profit achieved by making effective use of discretionary or float time. These are identified as levels A, B and C respectively.

A brief discussion of each is given below.

Level A Profit Potential

The basic profit potential is realized when the manager and his project team have made certain to include all project elements in the estimating, planning and control process; when they have made certain that everything is counted and there are no missing pieces. Every element missed erodes the profit picture just as a missing piece of a jigsaw puzzle spoils the pleasure of assembling it.

Level B Profit Potential

Once project elements are accounted for, they must be properly arranged in a logic pattern to produce the most effective plan of action. In any plan there are identified desired and necessary relationships. The proper expression of desired relations is a major factor in realizing level B profit potential. Here is where the true skill of the project manager begins to impact upon the job. The experienced, intelligent, knowledgeable manager will explore, simulate and select the most effective ways of assembling the job under his control. The level B profit potential is highest when the best ways have been selected.

Level C Profit Potential

This profit is highest when the job is scheduled well and a selection made as to where each task should be done in relationship to the discretionary time available to it. Often discretionary time is identified as float time. Where the good manager schedules the task when he has resource options (time, money, manpower, equipment, etc.) will largely determine how profitable the level C management work has been.

In a nutshall, level A profit potential deals with identifying all the elements involved. Level B profit potential is concerned with arranging these elements in a logical and effective action plan. The C level profit potential is realized when the project is managed well by proper scheduling within allowable resource limits.

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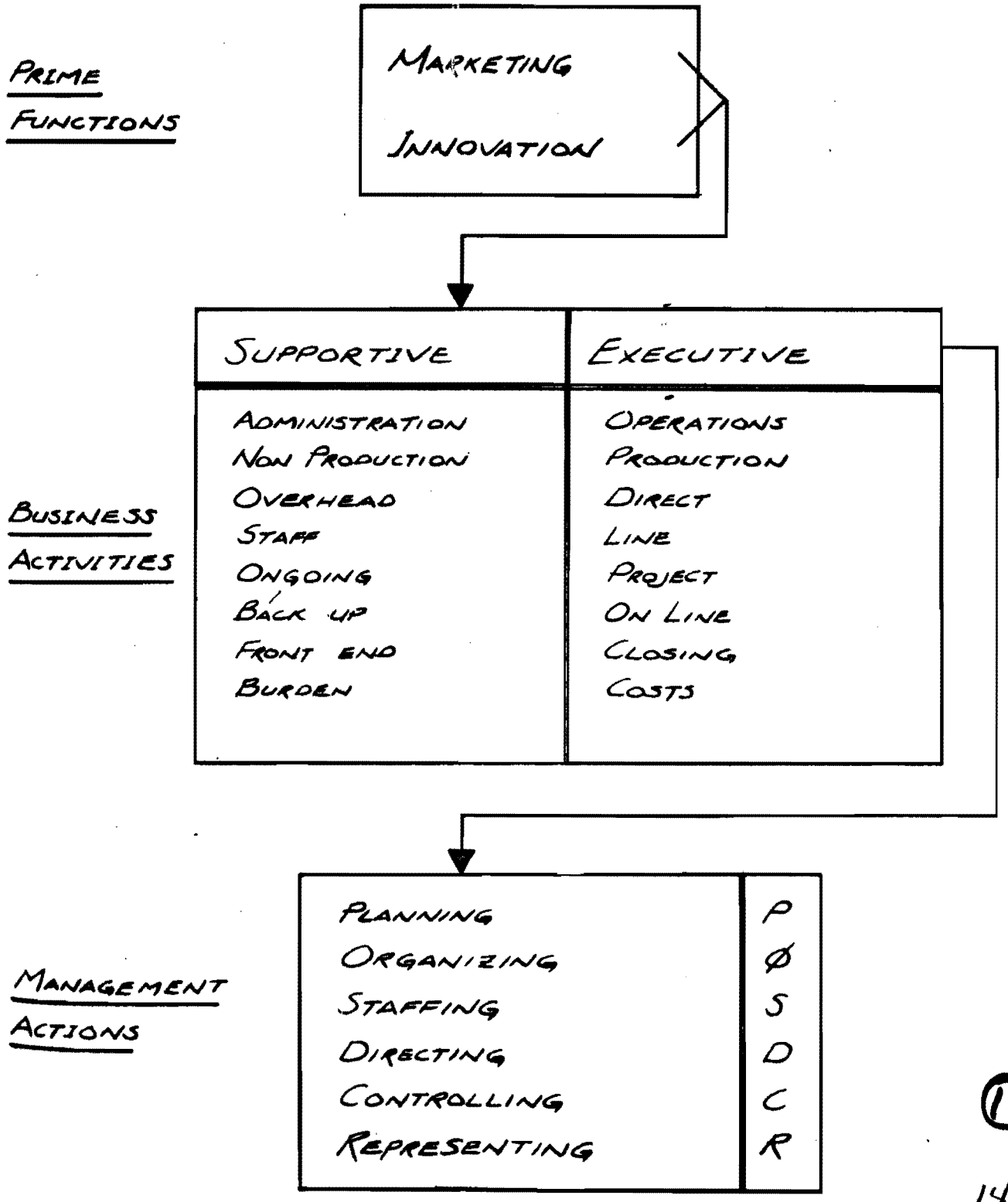
ELEMENTS OF BUSINESS & MANAGEMENT



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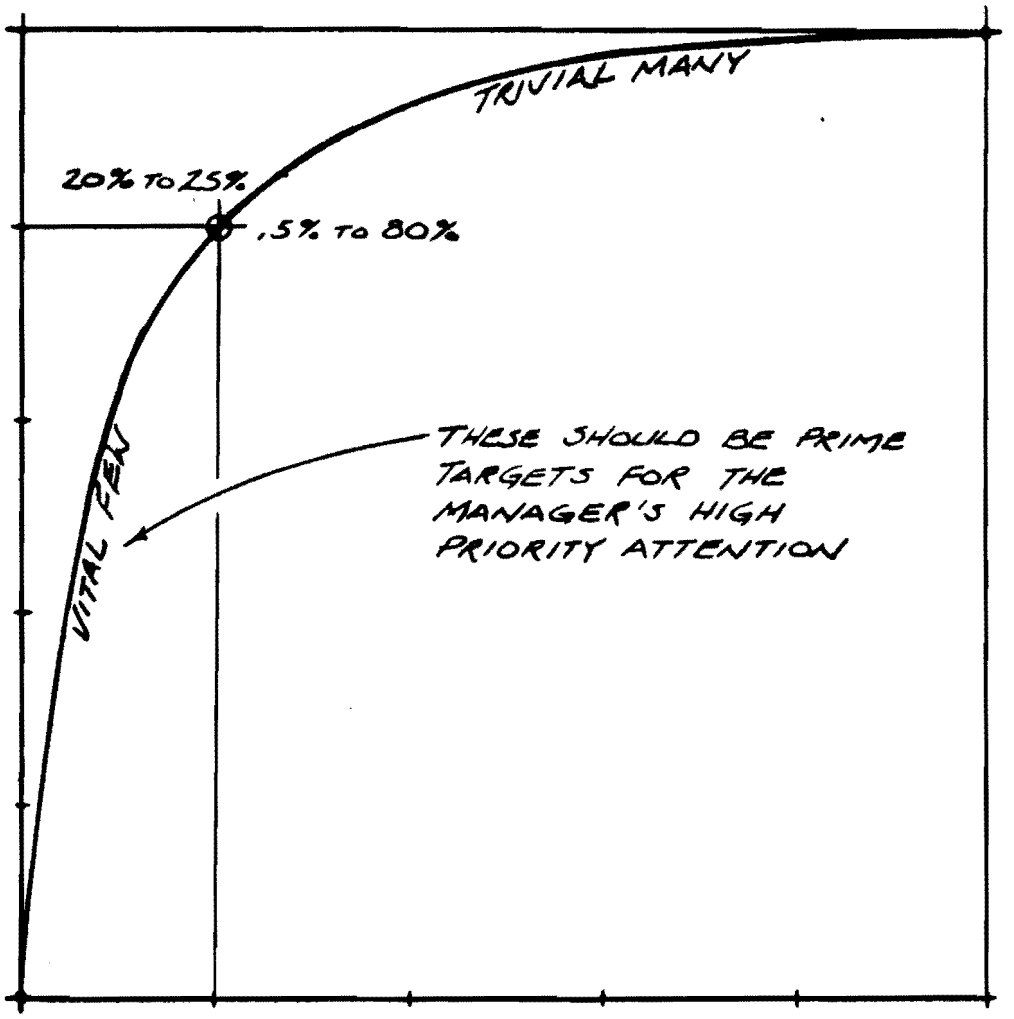
PARETOS LAW - IN AN OBJECT/VALUE SITUATION ONLY A FEW OF THE OBJECTS ACCOUNT FOR THE GREATEST PART OF THE VALUE.



VALUE OR UTILITY

PRICE
COST
DELAYS
MISTAKES
PROBLEMS
PROFIT
REJECTS
SALES
SAVINGS
SHIPMENTS
WASTE

OBJECTS OR RESOURCES

ACTIVITIES
CAUSES
OCCURANCES
PROBLEMS
RESOURCES
PRODUCTS
DECISIONS
FACILITIES
MATERIALS
METHODS
PRODUCTS
SALES CALLS
SERVICES
STAFF

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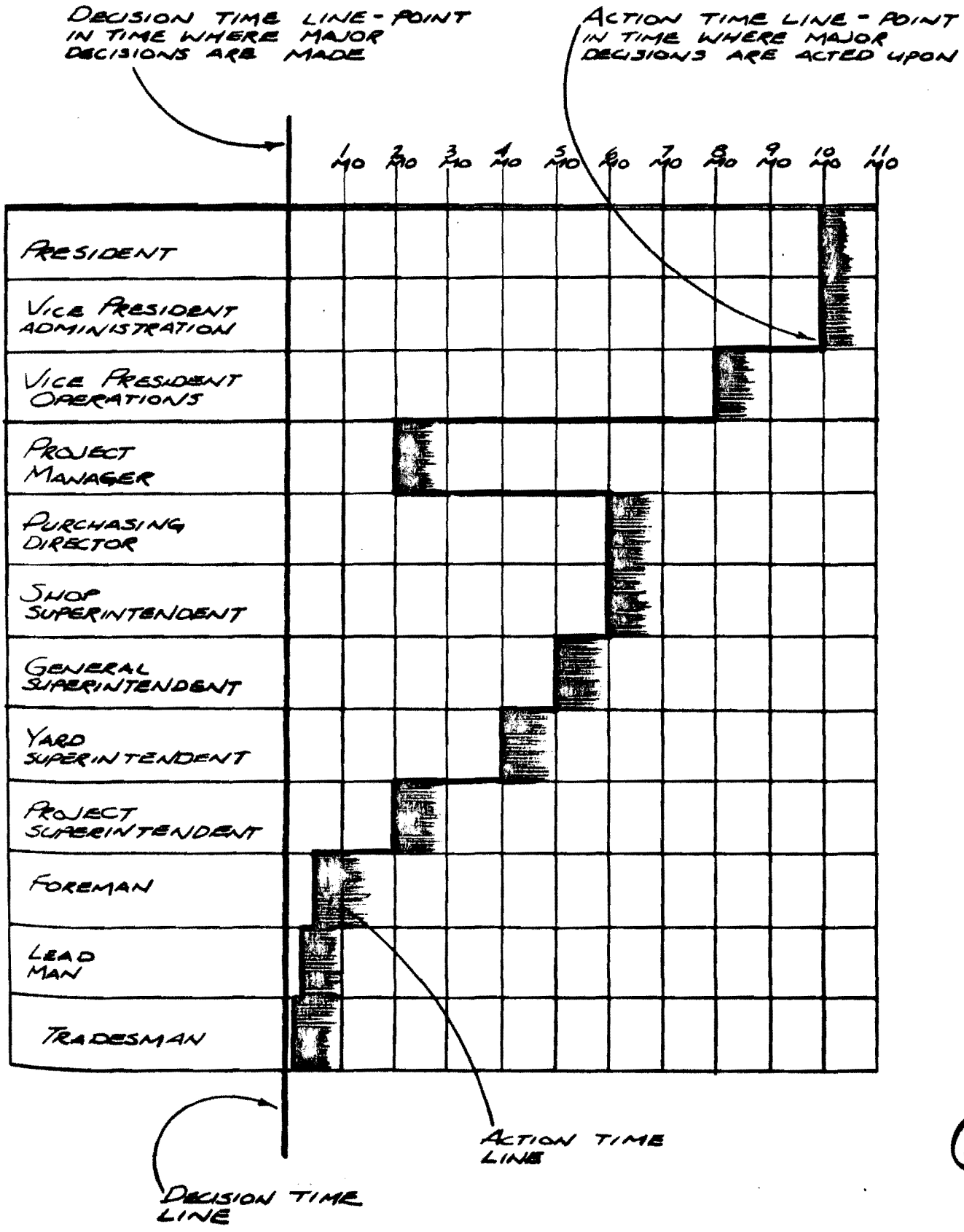
DECISION TO ACTION TIME SPAN



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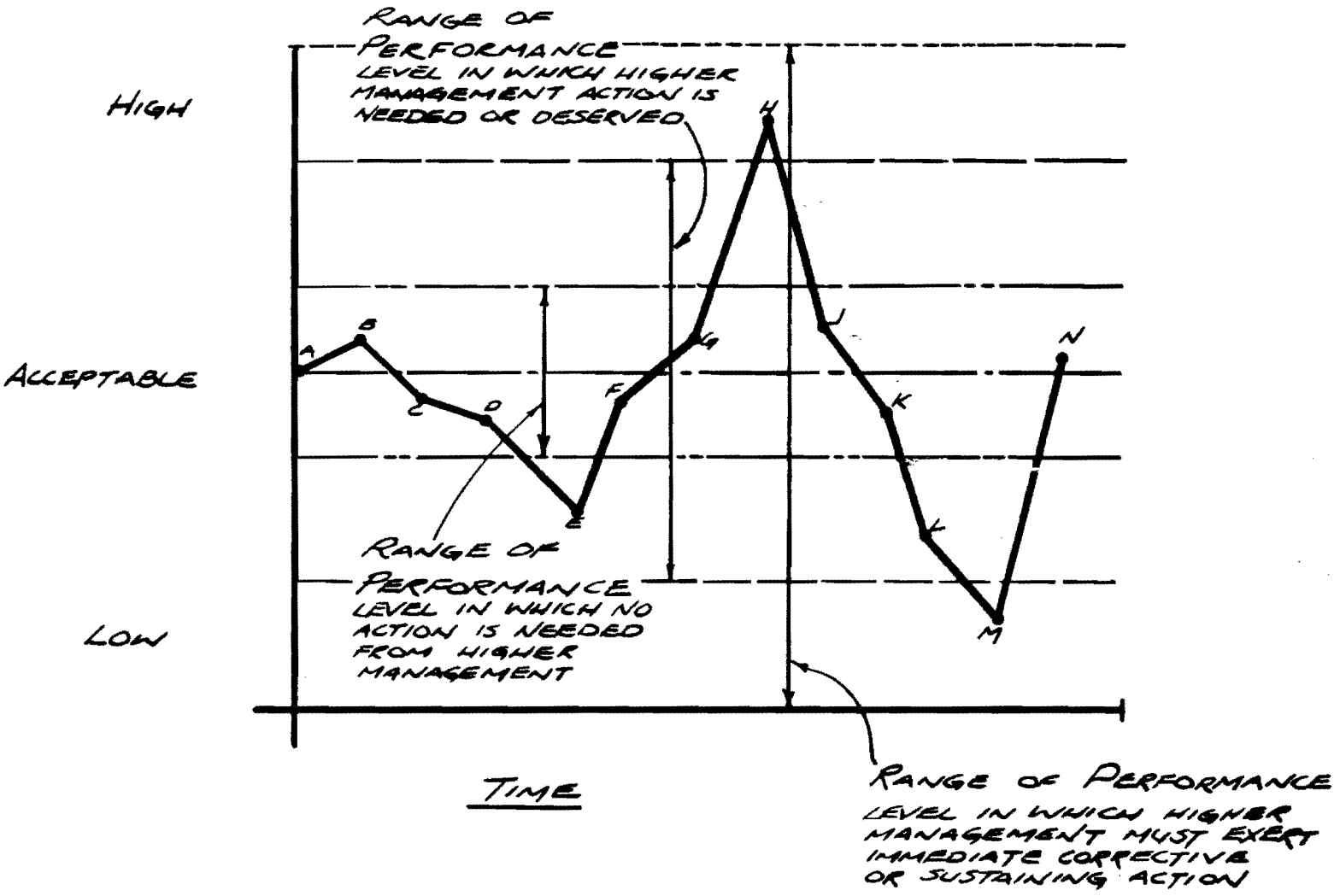

MANAGEMENT BY EXCEPTION (MX) AND PERFORMANCE LEVEL ACTIONS

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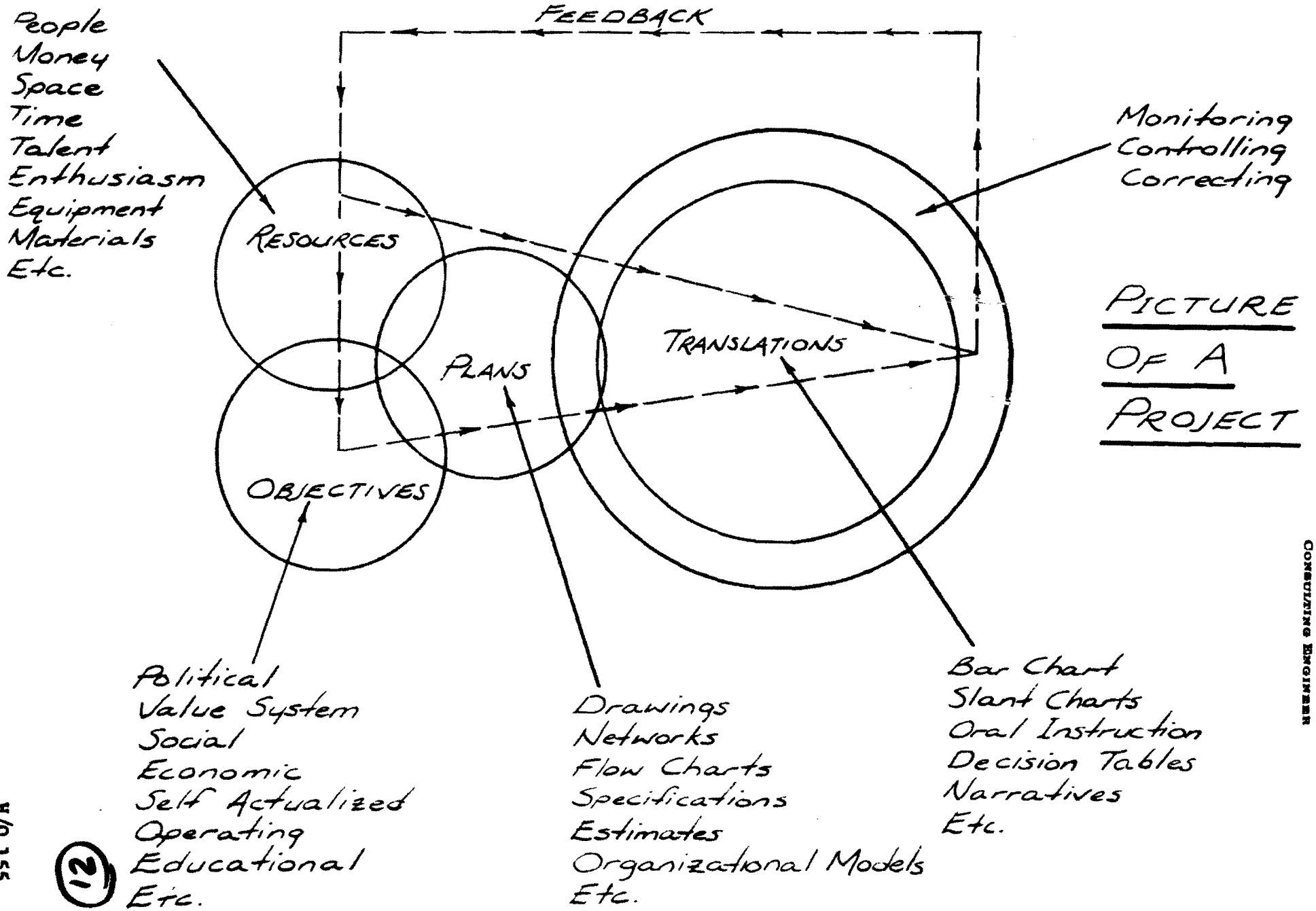

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SUGGESTED BIBLIOGRAPHY OF MANAGEMENT RELATED BOOKS

Managing Yourself Creatively — Ted Pollock

Hawthorn Books, Inc.
260 Madison Avenue
New York, New York (paperback)

The Nine Master Keys of Management — Lester R. Bittel

McGraw-Hill Book Company
330 West 42nd Street
New York, New York 10036

It All Depends — Harvey Sherman

University of Alabama Press
University, Alabama

Management - Tasks, Responsibilities, Practices — Peter F. Drucker

Harper & Row, Publishers, Inc.
10 East 53rd Street
New York, New York 10022

The Managerial Grid — Blake & Mouton

Gulf Publishing Company
Houston, Texas 77001

The Rational Manager — Kepner & Tregoe

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New York, New York 10036

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Cahners Publishing Company, Inc.
Boston, Mass. 02116

Effective Psychology for Managers — Mortimer R. Feinberg

Prentice Hall, Inc.
Englewood Cliffs, New Jersey

The Time Trap — R. Alec MacKenzie

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135 W. 50th Street
New York, New York 10020

Management - Theory & Practice — Ernest Dale

McGraw-Hill Book Company
330 West 42nd Street
New York, New York 10036

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GLOSSARY OF TERMS USED IN

PROJECT PLANNING AND MANAGEMENT

Administrative

Usually considered to be supportive of ex'e-cutive operations in an organization. Very simply, administrative costs may be considered the cost of management.

Authority

The leverage, either vested or earned, that allows an individual in an organization to effectively carry out his responsibilities.

Business model

A graphic depiction of the elements which make up a business entity. The model usually identifies premises, objectives and implementation. It recognizes basic business functions, business activities and manager activities.

Control

Maintaining firm, fair, competent managerial direction of any given situation. Controlling leads to achievement. It is usually accomplished by the invisible use of leverage.

Critical path method

A mathematical modeling technique which allows the user to establish ranges within which resources can or must be used.

Decision table

A tabular display of information regarding a defined situation which permits alternative courses of action to be evaluated by yes or no answers to explicit questions.

Decision - to - action time span

The amount of time required from the point at which a decision is made to the point where the decision is implemented. In a management structure it is important to insure that the full span of time from decision to action is covered from shortest to longest.

CY

Decision tree

A graphic device showing alternate courses of action from a given situation point. The decision tree is used to graphically show the impact of various possible decisions at any given point in the decision process. It can be quantified or unquantified.

Dysfunction - organizational

An organizational problem that hinders or prevents achieving objectives - may be temporary or permanent.

Early finish (EF)

The earliest possible time a task can finish in a network model if all of the tasks preceding it have been completed by their early finish dates.

Early start (ES)

The earliest possible time at which a task can begin in a network model if all tasks preceding it start at their earliest possible starting times.

Education

The teaching and learning process by which principles of doing things are conveyed to the learner.

Effective

Of a nature that accomplishes identifiable end objectives in accordance with an action plan, and achieves worthwhile peripheral goals resulting from intermediate accomplishments.

Elapsed duration

The estimated or actual amount of calendar or clock time an activity requires to accomplish considering all directly and indirectly related influences upon the task activity. This includes temporary work delays and stoppages due to influencing actions on the task.

Ex'e-cutive

The executing arm of the organization. This is the group and activities that are closest to the flow of expense and income in achieving the organization's prime objectives. It is closely related to line operations.

Fabrication facilities

Usually considered to be the physical location where materials and equipment are prepared and assembled ready for use.

Goals

Similar to objectives but quite often applied to individual effort rather than group or company effort.

Goals - dependent

Targets to be achieved, but affected by major influences beyond the manager's control. (Note: dependent goals, while beyond a manager's control, may be well within his company's ability to achieve. Lack of correlation between company and individual effort in achieving a manager's dependent goals may cause severe organizational dysfunctions.)

Goals - direct control

Targets achieved by managing conditions well within the direct influence of the manager.

Histogram

A graphic depiction of quantity plotted against various elements such as item function, item name or time.

Hygiene

The elements in a given situation that are acceptable to an individual but do not necessarily motivate him. These same factors, if unacceptable, act as negative influences upon the individual.

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Interfaces

Points at which different but related activities exert direct influences upon each other. Interfaces are often the influence points where direct control goal activities contact dependent goal activities. Poor management of interface situations usually causes problems.

Late finish (LF)

The latest allowable time in a network model that a task can be completed without forcing those tasks that follow it past their latest allowable starting dates.

Late start (LS)

The latest allowable time at which a task in a network model can start without forcing the tasks that follow it past their latest allowable starting dates.

Leverage

The effective use of vested and earned authority to solve problems and achieve objectives.

Life cycle cost

The total cost of a system over its entire defined life.

Line activities

Those organizational activities that are most closely identified with the flow of basic expense and income related to the prime objectives of the organization.

Line of action

A sequential statement of the activities necessary to conceive, design, build and operate an environment.

Manage

To define, assemble and direct the application of resources.

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Management by exception (MX)

A measuring and monitoring system that sounds an alarm to the manager when problems have or are about to arise, and remains silent when there are no problems. The system explicitly identifies the problem area, thus permitting the effective manager to manage the exception while leaving smoothly running operations to continue running smoothly.

Managerial grid

A numerical grid which positions a manager in a matrix by defining his concern for people as compared to his concern for production. This grid has been highly developed by Blake & Mouton and is useful in establishing managerial systems that are both desirable and needed.

Money flow

The flow of income and expense plotted in amounts of money against time.

Monitoring

Measurement of current project conditions and position against the standard of performance.

Motivation

The elements of a given situation that encourage and make effective, successful and meaningful the activities of those engaged.

Network plan

A graphic statement of the action standard of performance expected to be used in achieving project objectives.

Network planning

A graphic technique of showing the necessary and desired actions needed to achieve end, intermediate and peripheral objectives.

Objectives - end

Those objectives that are realized from and upon total completion of the project work.

Objectives - intermediate

Those objectives achieved at specific and identifiable stages of the project, i.e. partial occupancy of a building, or turn-over of a mechanical system for temporary heat.

Objectives - long range

Usually applied to organizational objectives to be achieved within a 5 to 10 year period. Sometimes called strategic objectives.

Objectives - medium range

Organizational objectives to be achieved within a 1 to 5 year period. Sometimes called tactical objectives.

Objectives - peripheral

Those objectives realized on an ongoing basis through the life of the project and achieved as an indirect result of project activities. Peripheral objectives may be personal, professional, technical, financial or social. Examples of peripheral objectives might include staff promotion, profitable subcontractor operations or specialized experience.

Objectives - short range

Organizational goals to be achieved between now and 1 year. Sometimes called operational or short term tactical objectives.

Ongoing organization

The arrangement and interrelationships of people charged with maintaining supportive actions provided by the ongoing elements of a company. Examples of functions contained in the ongoing organization are estimating, administration, legal, sales and purchasing.

Organization

The arrangement of resources (talent, skill, money, time, space, people, et al) that has evolved or been selected to accomplish the functions, activities, manager activities and goals of a business or institution.

Planning

Establishing and arranging the necessary and desired actions leading to end, intermediate and peripheral objectives.

Problem

A deviation from an accepted standard of performance.

Profiling

A selective, flexible, dynamic operable system of screening projects, people, activities and other elements of a project to achieve optimum results, as defined by established plans and objectives.

Profit - education

Company and project fulfillment of learning goals held by individuals or groups involved.

Profit - financial

Fundamentally, the difference between organizational cash income and organizational cash expense. Further definitions of financial profit are complex and often unique to an organization or project.

Profit - self actualization

Personal fulfillment realized after basic needs of shelter, safety, protection, love and freedom from hunger are achieved.

Profit - socio-economic

Company, group or individual achievement of social objectives within a financially profitable situation.
(Note: very difficult to explicitly define.)

Profit - value system

Company and project fulfillment of personal, professional, technical, social and financial values held important by individuals and groups.

Project

A set of work actions having identifiable end objectives.

Project Manager

That individual responsible for full implementation of a project through the authority and resources given him by his organization. Usually the project manager is most concerned with supportive action which brings resources to the point of effective use.

Project organization

The arrangement and interrelationships of people charged with implementing the end, intermediate and peripheral objectives of the project.

Project stages

A sequential definition of the action steps to be taken in successfully carrying out a project.

Project superintendent

The individual, usually in a construction program, who is most directly responsible for the expenditure of funds to carry out the project. The project superintendent is responsible for ex'e-cutive actions.

Question - direct

One asked with strong indications as to specifically who should reply.

Question - overhead

One asked of a group without indication as to who is to reply.

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Question - relay

One passed along to someone else other than the party originally asked.

Question - reverse

One returned to the questioner by rephrasing or rewording the original question.

Relations - formal functional

Project relationships that concern distribution and use of data, information and decisions that flow along formally defined transmission lines. Formal functional communications are usually written and are normally one to many or many to one in nature. Formal relations are precisely defined and most day to day business is accomplished within the formal relation framework.

Relations - informal functional

The natural channels along which organizationally related material is most easily, comfortably and quickly transmitted. The informal relation usually exists by consent and is stimulated to maximum effectiveness by a mutual profit gained from the relation. There is little, if any, authority normally expressed in informal relations. Communication is usually oral and one to one. Often informal relations define the hidden organizational structure.

Relations - occasional or temporary

Those created when extraordinary or unusual management demands arise. The temporary relationship is, by its nature, unstable and should seldom be adopted as a permanent active arrangement. Extensive use of informal functional relationships creates business dysfunctions, breaks down morale and causes internal tensions difficult to resolve.

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Relations - reporting

The official channels through which each individual conveys or is given raises, appraisals and evaluations; is fired, assigned, reassigned, and is provided professional, vocational and personal identity. Usually is a one to one communication. The true organizational superior of an employee is usually that individual with whom he maintains a reporting relation.

Relations - staff

Those business relations through which a person or group provides advisory services necessary to accomplish goals. Staff personnel usually act in a consulting capacity with little or no authority relative to those outside the staff group.

Resources

The tools of the supportive and ex'e-cutive manager. Resources can include manpower, talent, tools, equipment, time, money, experience, space, materials, as well as intangibles such as enthusiasm, morale and leverage.

Responsibility

The assignment, spoken or understood, that a person in an organization has as his part in maintaining the organization's health and continued vitality.

Schedule

A graphic or written tabulation of project activities showing where they are to start and finish. The schedule is derived from the plan of action and the network model by locking the tasks and the resources they require into a specific time position.

Span of control

The number of organizationally related individuals a manager directly controls. Span of control is signified by the number of one to one relations a manager maintains.

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Staff

A supportive unit of any organization in which the basic function is usually advisory in nature. Staff functions are occasionally defined as overhead or non-production. They are considered to be the opposite of line activities.

Standard of performance

A well defined, explicitly stated, approved and accepted statement of the measurement object to be used as a gage of performance and goal achievement.

Structured organization

An arrangement of business elements that tends toward highly defined, formal functional definition. The structured organization, depending upon degree, can work exceptionally well or not at all. It tends to lead toward high overhead, excessive management layering and quite often, particularly in subsidized sectors, management paralysis. It is beneficial in that when well used, it tends to eliminate confusion and misconceptions regarding the role of the individual in the organization.

Talent

A capacity for achieving identifiable success. Usually talent is considered one of the abstract resources.

Time

The clock or calendar position assigned to activities. Usually in network systems time is measured in elapsed working days.

Total float (TF)

The amount of discretionary time available to a task in a network model. The total float is the difference between the early and late starts and finishes. It is one of the most important elements in the use of network systems.

Training

The teaching and learning processes by which specific, explicit methods and systems of doing something are conveyed to the learner.

Translation

Recasting standard of performance information and data into graphic, narrative, mental, oral or other form to insure optimum use by all involved.

Unstructured organization

An arrangement that encourages interrelations tending toward informal operations, minimal paper work, loosely defined reporting relations and high dependence upon individual initiative. It should be noted that the informal nature of this kind of organization demands continued challenge and excitement infused from the outside to maintain economic strength without being subsidized. Usually subsidization of the unstructured activity brings it to an end.

Value engineering

A simulation technique that encourages identification of the best function for the least cost (not only financial) in a given technical decision situation.