
1. BACKGROUND

1.4. THEORY

1.4.1. THE IMPORTANT COMPONENTS OF LIFE—MARY CASSATT

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1.4.2. A MANAGEMENT SYSTEM

1.4.2.1. SYSTEM BASICS

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1.4.2.4. MODELS AND THEIR STRENGTHS AND WEAKNESSES

You won't find a model that's perfectly general, simple, and accurate.

Models give structure to experience. They bring together concepts to show relationships and represent complex situations. Usually the more simple models are more distinct from reality. As we move toward reality the models become more complex. We never do reality; we only do models. We use models to abstract or reduce reality. Are we modeling one situation, one type of situation, or all situations? Remember the sign that says: price, speed, accuracy, pick two. For models we could have a sign that says: simple, accurate, general, pick two.

The management system model is for one management system, or one domain of responsibility. But, we don't change the model one bit for any other domain of responsibility. I've seen the management system model extended to other practices than management. For example, who teaches, what is taught, what we teach with. Therefore, the model is general. Given the complexity of management, the model is simple. However, the management system model is accurate only when we want to view the domain of responsibility as a closed system. We got our two: simple and general.

Morris, in discussing models says, "Similarly,

attempts to develop a consciousness of some of the characteristics of models appears helpful. Beyond the rough description of a model as 'simple' or 'complex,' one might usefully consider:

Relatedness. How many previously known theorems or results does the model bring to bear upon the problem?

Transparency. How obvious is the interpretation of the model? How immediate is its intuitive confirmation?

Robustness. How sensitive is the model to changes in the assumptions which characterize it?

Fertility. How rich is the variety of deductive consequences which the model produces?

Ease of Enrichment. What difficulties are presented by attempts to enrich and elaborate the model in various directions?"

(William T. Morris, "On the Art of Modeling," *Management Science*, 13 (12), August 1967.)

1.4.2.5. SCHERKENBACH SYSTEM MODEL

Matching the voice of the process to the voice of the customer gets you balance just like matching the Management System Model interfaces gets you balance.

Bill Scherkenbach, in his book, *Deming's Road to Continual Improvement*, begins with a classical input-output model for a system, or, as he calls it, a process. He shows people, method, material, equipment, and environment as inputs to and as outputs from a transformation. He shows downstream customers for the outputs and upstream suppliers for the inputs. In this way, he links successive processes, or systems, or domains of responsibility. You are the customer of your supplier. You supply your customer. Your customer is the next person's supplier.

In my view, your management system gets input from one or more of your stakeholders (customers, staff, owners, neighbors, and suppliers) and gives output to one or more of your stakeholders. Then, the external environment isn't part of the input or output, but is on the other end of these transfers to and from you. Scherkenbach sees environment as an internal thing, like the work environment. Also, the method is part of the system, isn't part of the input or output, but is on your end of these transfers. Scherkenbach sees method as the work flow. Now, I've resolved differences between his terms and mine.

Scherkenbach brings the power of his model to Figure 1.4.2.5.1. He says, "If you look (with careful attention to detail) at the process model in [Figure 1.4.2.5.1.], you see that these customer and supplier transactions are facilitated by two sources of communication: One voice is from the customer, and the other is from within the process itself. I call these the **Voice of the Customer** and the **Voice of the Process**. Like any voice, they can be active or passive." (pp.11-12.)

I might argue that the voice of the customer is really the voice of all the stakeholders. Scherkenbach says, "The **Voice of the Customer** communicates to you the producer, the wants and needs of your customers, as you perceive them. It can also be more generally viewed as the forecast, goal, plan, aim, prediction, objective, target, "druthers," or as Dr. Deming sometimes says, "fact-of-life." If you listen to only a single voice, you do so with incalculable risk." (p. 12.) The point is that this voice tells you the reference input in the control loop model in Figure 1.1.21.8. You learn from your customer or stakeholders where you need to operate your work process (the plant in the control loop). You can translate the voice of the customer as a target, as upper and lower limits, and as a parabolic loss function. The voice of the process tells you what you can do. Just because the customer tells you what he or she wants doesn't mean your work process can deliver.

Scherkenbach describes the voice of the process. "The **Voice of the Process** is the *actual* output, or what Dr. Deming describes as the *result* the process gives you. It also can be translated in different ways. Its translation, like the Voice of the Customer, is heavily dependent on the sampling method that you choose." (p. 14.) This short description resolves much of the confusion over Deming's words. Deming both says to focus on the process and shows how to measure results. Obviously, both process and result are important, but each has its place. The result is a voice speaking to you. Don't carry out your desire to act on the voice. Don't shoot the messenger. I say the result is the window into the process. You want to act on your work process, and on

your management process. You don't know what your process is doing or if the process has improved unless the process tells or shows you. The process tells or shows you through the result of the process.

Scherkenbach says the key words for balance. "The job of every person who is in the role of a process manager is to **match** the Voice of the Customer with the Voice of the Process." In Figure 1.4.2.5.1., you want to move both voices so they match. "In a deterministic world, or one that does not admit to or understand variation, if the *actual* (Voice of the Process) does not match the *plan* (Voice of the Customer), you are asked to explain what happened. It is common in business to 'explain all variances.'" The questions that follow from a deterministic view of the difference between plan and actual give rise to C, as in catering to crises, put there by your own hand.

You have variability both in the voice of the customer and in the voice of the process. We know all customers don't want the same thing. Likewise, our process isn't the same every day. Therefore, we must learn to deal with variation in everything we do. Scherkenbach introduces one of my favorite cartoons to highlight our problem in dealing with variation in

our lives. "The late Professor David Chambers often used this cartoon [Figure 1.4.2.5.2.] to emphasize the fact that although variability is commonplace in our life, we are surprised when it happens in our formal places of work.

We do not expect the popcorn to pop all at once! In fact, we understand and even expect that the individual kernels will pop at different times. Why should we be surprised that our businesses perform in a similar fashion?" (pp. 17-18.)

For success, you need to balance the components of the Management System Model by paying close attention to matching the interfaces between pairs of components. For success, you need to match the voice of the customer and the voice of the process by recognizing the variation in both and moving either one to match the other. Variation is important in matching the voice of the customer and the voice of the process because you can quantitatively measure both as, for example, number of widgets demanded each day and number of widgets produced each day. You can't so easily quantitatively measure information portrayal or information perception—at least to the point you can get picky about the variance within them.

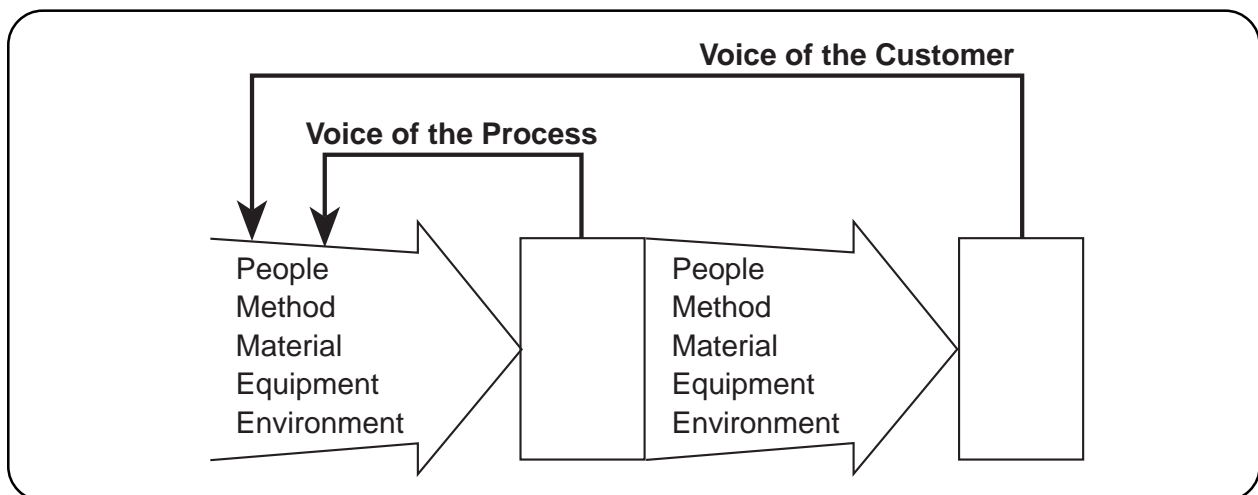


Figure 1.4.2.5.1. For success, we bring the voice of the customer together with the voice of the process to make a match. (taken from Scherkenbach)

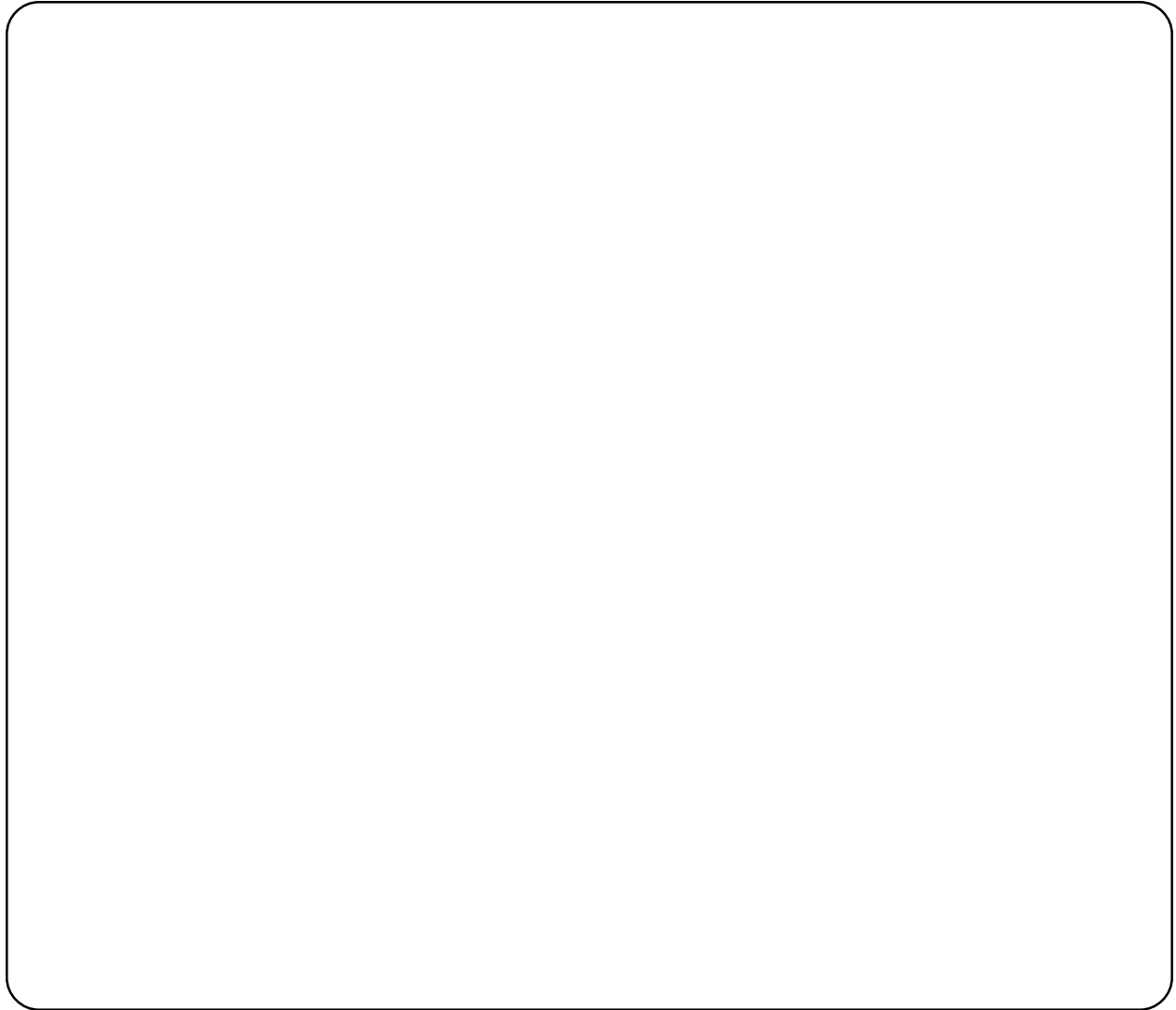


Figure 1.4.2.5.2. *We clearly understand variation in the popping time for corn kernals. (taken from Scherkenbach, who took the cartoon from David S. Chambers, who took the cartoon from an unknown artist)*

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1.4.2. A MANAGEMENT SYSTEM

1.4.2.6. MANAGEMENT SYSTEM MODEL COMPONENTS

1.4.2.6.1. WHO MANAGES

The who manages component of the Management System Model converts information into actions through the decision making process.

Who manages is, in terms of Peter Drucker's definition of an executive, anyone who uses information to make decisions resulting in actions that affect what is managed. In addition to presidents, directors, and controllers, who manages includes scientists and the secretary who uses information to decide who does or does not get in to see the boss. Each of us has one or more domains of responsibility; and to achieve the purpose of any domain, the way who manages is integrated into the system is critical.

In other models similar to the Management System Model (MSM) of Figure 1.1.18.1.3., models designed to describe the mechanics or internals of the domain of responsibility, who manages is only implied. The absence of the human element has been recognized as a major weakness of these similar models. Motivated by Henry Mintzberg's important paper, *Impediments to the Use of Management Information Systems*, the who manages component plays a primary role in the MSM.

A number of characteristics of the who manages component affects how the who manages component works in the management system. I describe who manages by three terms: history, cognitive style, and human characteristics.

A person's history includes their experience, education, and record. Webster says experience is, "direct observation of or participation in events as a basis for knowledge." We know that our experience conditions how we perceive information and what we expect from the decisions we make. The value of experi-

ence in a given domain of responsibility depends on the domain. For example, your international experience is directly valuable to an organization dealing in international activities. Any experience is valuable indirectly, in that you can generalize from one situation to another.

Your experience can have both positive and negative effects on how you perform within the Management System Model. Taylor found that more managerial experience leads to 1) greater accuracy in judging the value of information, 2) quicker decisions, and 3) less chance adverse consequences will cause changes in the decisions. (Ronald N. Taylor, *Age and Experience as Determinants of Managerial Information Processing and Decision Making Performance*, *Academy of Management Journal*, 18:1, 1975, 74-81.)

Your education should be an indicator of academic maturity. Academic maturity affects how you deal with conflicting, incomplete, or inaccurate information. In some cases, education can be a surrogate for experience. We assume you can learn from the experience of others.

In the MSM, who manages perceives information and makes decisions based on the perceptions. The perception of information and the way a person acts on that information is a function of their personality type. You can find any number of classifications for personality type or cognitive style. Typically, the classifications reflect a person's preference in perceiving information and acting on information. The most popular measurement and

classification scheme today is the Myers-Briggs Type Indicator (MBTI). This scheme can be both enlightening and, if used improperly, harmful. The key to using the scheme is knowing that what you find is preference, not ability. I'll discuss the MBTI in more detail soon.

Human characteristics are traits and qualities of the human decision maker. The characteristics include knowledge, skill, ability, and traits, like age. Age usually reflects education and experience, but not necessarily. We hope education and experience affects knowledge and skill and, indirectly, ability. The objective of this book is to increase the knowledge and skill of the who manages in building and using management tools to get the best information to make decisions with.

Macintosh and Daft recognize human traits as important information in designing information systems. They say, "Manager's personal traits are important and should not be overlooked. New information systems often are linked to changes in behavior patterns, so change strategies need formulation. In addition, relevance, timeliness and accuracy should be considered by designers." (*User Department Technology and Information Design*, North Holland Publishing Company, 1978, p. 124.) When building a management tool, we must carefully consider the user, or the who manages component in the domain of responsibility we're using for our unit of interest. We must consider all characteristics of the who manages. Later, I'll discuss the importance of the measures of relevance, timeliness, and accuracy for managing data and information. The who manages component affects at least the first two of these measures. For example, what is relevant or timely for one person may not be for another.

As I mentioned in Module 1.1.14.2., the MSM has one who manages. Who manages is re-

sponsible for and accountable for the domain of responsibility making up our unit of interest. Who manages can delegate the authority to manage part or all of their domain and can hold the people they delegate to accountable to them. Ultimately, who manages is held accountable for all of his or her responsibilities, including those he or she delegates to others. The dilemma of mixing the ideas of coaching, directing, and being a cop as a supervisor and the issue of a single who manages is highlighted by a McGregor quote in Weisbord's book. "I believed...that a leader could operate successfully as a kind of adviser to his organization. I thought I could avoid being a 'boss'. Unconsciously, I suspect, I hoped to duck the unpleasant necessity of making difficult decisions, of taking the responsibility for one course of action among many uncertain alternatives, of making mistakes and taking the consequences. I thought that maybe I could operate so that everyone would like me...I couldn't have been more wrong. It took a couple of years, but I finally began to realize that a leader cannot avoid the exercise of authority any more than he can avoid responsibility for what happens to his organization." (Douglas McGregor, *On Leadership*, 1954, pp. 2-3; in Weisbord, p. 123.)

In some organizations today, the who manages employs a participative management style, and decisions are made collectively. Weisbord states Lewin's core principle as: "*we are likely to modify our own behavior when we participate in problem analysis and solution and likely to carry out decisions we have helped make.*" (p. 89.) I would like to add that we also modify our attitude to include a feeling of responsibility for and commitment to the output and outcomes from the decisions we help make and the corresponding actions we help carry out. This feeling is important for teamwork, but doesn't change the ultimate accountability of the who manages component of the domain of responsibility.

Max DePree, after mentioning Drucker's definitions for efficiency and effectiveness, says "Leaders can delegate efficiency, but they must deal personally with effectiveness." (Max DePree, *Leadership is an Art*, Dell Publishing, 1989, p. 19.) He then says, "Participative management is not democratic. Having a say

differs from having a vote." (p. 25.)

For a more-detailed discussion of the who manages component of the MSM, see Larry Mallak's thesis *Applying the Management System Model to a Federal Government Organization*, September 1986.

1.4.2.6.2. WHAT IS MANAGED

The what is managed component of the Management System Model converts actions into performance indicators about the operation's products and services and the work process that produced them. The what is managed component also converts capital, labor, equipment, material, and energy inputs into products and services and associated waste outputs.

What is managed includes the tangible physical things that are managed (including operations tools, not to be confused with the tools we use to manage with). The physical things are not requisition forms but cars and vans in the motor pool; not pick tickets and packing slips, but nuts and bolts in the warehouse; not supply and demand forecasts but oil in wells, tankers, refineries, trucks, and service stations; not MIS and organization structure but fork lifts and hammers. In the service business we manage documents, dossiers, cases, and briefs, but not calendars and checklists. We use calendars and checklists to manage with. As teachers we manage students, books, and class meetings, but not grades, rolls, and registration forms. We use grades, rolls, and registration forms to manage with.

Collectively, the people, facilities, and materials we manage and their interrelatedness we call our operation. The output of our operation is our product or service—our result—an indicator of our performance to be measured, evaluated, controlled, and improved. The output and its characteristics relate to our purpose.

I characterize the what is managed component in terms of its physical parts, their attributes, and their relationships. The what is managed component is the operation, or work process, of the domain of responsibility. The work process converts resources into products and services. Some of the resources make up the work process and some flow through the work process. For example, a bank uses money as

capital to support all the parts of its work process and a bank has money flow through the process. If your business is managing information (like a radio station), information plays the role of your materials in CLEM. You also need information from your management tools to tell you how well you're managing the information flow through your business (radio station). In characterizing the work process, we need to incorporate time. When does the project start? What is the flow rate? The attributes of the work process parts and products form performance criteria.

The work process can be formed in many ways. The work can be workstation type work, where a large effort is carried through the process by a single person. An example is a job shop or approving credit in a bank. The work can be assembly line type work, where many small efforts are passed from station to station and person to person as each person adds value to the work flowing through the process. Of course, the work can include combinations of workstation and assembly line, where one person does a number of steps to the work and passes the work to someone else who does more steps.

The what is managed component is the focus of major disciplines, like production and operations management. The focus of the Scherkenbach system model in Module 1.4.2.5. is the operation and its input and output.

One difficulty in dealing with the what is managed component is the duality involved

with the difference between the management system, or the domain of responsibility, and the work process, or operation. The physical support structures for the management tools, such as notebooks for plans, charts for organization structures, and computers for management information systems are part of the what is managed component. The substance of the management tools is conceptual. The substance is data and information, intangible things we keep in our head. When the person who's responsible for the domain isn't making decisions but is doing tasks within the work flow, he or she becomes part of what is managed. The who manages is the decision maker.

Macintosh and Daft emphasize the importance of understanding what is managed when trying to build management tools. They say, "In our investigation of information systems in a variety of organizations we discovered a central factor that apparently has been overlooked in conventional thinking. And systematic study suggests the same result: work-unit technology places a critical constraint on the design of the information system. There is a relationship between the technology of a work-unit and the amount and type of information it requires to perform effectively.

Simon defines technology as the knowledge of how to do things and how to accomplish organizational goals [*Technology and Management*, Management Science, June 1973, p.1110.]. Thompson defines technology along

similar lines as the beliefs about cause/effect relationships to produce desired outcomes [*Organizations in Action*, McGraw-Hill, 1967]. Technology, then, includes the knowledge, procedures and techniques used to perform a given organizational task.

Work-unit technology can be analyzed along two dimensions [C. Perrow, *A Framework for the Comparative Analysis of Organizations*, American Sociological Review, April 1967, pp. 194-208.]: (1) the degree to which the task process is understood (task knowledge) and (2) the variety involved in the task. Task variety is the frequency of unexpected problems that occur during task activities. Task understanding pertains to the availability of concrete knowledge about work-unit activities." (*User Department Technology and Information Design*, North-Holland Publishing Company, 1978, p. 123-131.)

Technology isn't the only feature of an operation that should influence the development of management tools. The idea of classifying an operation in terms of its technology against dimensions related to information systems suggests that we can build better management tools if we know what the operation is in the right terms. Later, I'll suggest a number of dimensions and associated frameworks we can use to figure out what management tools (of which the information system is but one) will work best for the organization.

1.4.2.6.3. WHAT IS USED TO MANAGE

The what is used to manage component of the Management System Model converts data to information.

What is used to manage comprises our management tools. The pick tickets, forecasts, grades, plans, information systems, procedures, budgets, and many more are such tools. Routine paperwork is part of this component, along with the MIS, culture management tools, and the organization structure.

With the exception of those of us whose direct responsibility is to design and print new corporate or government forms, develop information systems, and write plans, we don't manage these tools, we use them to manage with. Operations tools, we *manage*—trucks, hammers, or process lines. Management tools, we *use to manage*. When we manage a plan, it sits on the shelf. When we manage paperwork, it restricts us. When we manage an information system, it's a thing of beauty that nobody uses.

We use management tools to manage with. All management tools convert data to information. Management tools are conceptual. They are in your mind. They take up no space. We embody management tools in physical containers like computers, files, calendars, etc. When you think of management tools, you typically think about their physical containers. I want you to think about the concept of converting data to information. The physical containers are part of the what is managed component. The concepts are the what is used to manage component.

The overlap of the components needed for us to effectively use management tools shouldn't surprise you. Remember, I separated the two components to analyze the management system by looking at the system components. That's the system perspective. In the holistic

perspective you don't separate components. It's like the wave and particle forms of mass and energy. Sometimes mass behaves like energy, and vice versa. Mass disappears and energy appears, and vice versa. We consider a particle to be mass and a wave to be energy. I also consider the physical container to be an operations tool and the concept to be a management tool. Mass and energy are the human mind's attempts at understanding. So are the operations tools and the management tools—the what is managed component and the what is used to manage component.

For analysis, you use the form that helps you understand. The thing in question is really in both forms simultaneously. It's just how you look at a thing analytically.

You use many tools to support management decisions. As opposed to situational analysis (who manages adjusts to bring the management system into balance) and contingency theory (what is managed is modified to balance the management system), I focus on developing, modifying, or improving tools that produce successful, balanced management systems. The what is managed component is the ends for management and what is used to manage component is the means.

You have a system of tools which comprises all your decision support tools (what is used to manage) and their greater or lesser degree of interrelatedness. I classify this system of tools into the five functional groups or categories shown in Figure 1.4.2.6.3. The methods, guides and rules, precedents, and data-to-information chain are tied together within your domain and between your domain and those of other do-

mains through the relationships and structures.

Relationships and structures provide the glue.

Examples of management tools in the relationships and structures category are organization structures, work breakdown structures, budget and reporting structures, flow charts, and other communication and coordination tools. Relationships and structures also tie together what is managed and who manages within your domain and between domains. You don't manage your organization structure; you use it to manage with. Therefore, your organization structure must suit you, the who manages component, and fit what is managed rather than vice versa or it won't help you. Relationships provide for stability in your domain mostly through structure because, to be successful, all your tools and your people, materials, and facilities work together through their relationships.

Your methods suggest solutions.

Examples of management tools in the methods category are expert systems, operations research models, and paperwork. We use many methods to help us manage. Whether quantitative model, paperwork, rule of thumb, or expert system, we look for a suggested solution based on the assumptions and limitations inherent in the method. As managers, we compare our solutions and judgment to the method and either agree with the solution, adjust our solutions, or question the method by adjusting constraints or quizzing alternatives.

Guides and rules help you control your domain and support other tools.

The subcategories of management tools in the guide category include policies, plans, proce-

dures, and instructions. Examples of management tools in the rules category are maxims, guiding principles, norms, directions, constraints, specifications, conditions, laws, and orders.

Precedents provide the stability of the organization.

Examples of management tools in the precedents category are the social system, awards and recognition, credos, and socialization. Your domain of responsibility has an attendant history and culture or, if you're forming a new domain, you'll translate your ideas of precedents into it. Richard Pascale believes we should take socialization out of the closet and recognize the degree to which corporate culture influences our management efforts. (Richard Pascale, *The Paradox of "Corporate Culture": Reconciling Ourselves to Socialization*, California Management Review, Vol 27, No. 2, winter 1985.) Waterman and Peters in *In Search of Excellence* highlight the importance of culture in success. Precedents should be used to manage; however, precedents don't just happen to help—you must use them according to your purposes.

The key to the data-to-information chain is the word chain.

The data-to-information chain is the information system, usually embedded in file cabinets, notebooks, rolodexes, magnetic boards, and other devices. The data-to-information chain operates routinely to acquire, store, retrieve, and manipulate data to generate and portray information. The other groups of tools involve data and information; but focusing on the word chain, the data-to-information chain singles out routine, repeated steps for regularly and frequently converting data into information.

DECISION SUPPORT TOOLS, THROUGH THEIR INTERRELATEDNESS, CONSTITUTE A DSS.

- Relationships and Structures - organizational, work breakdown, formulation and executions (B&R), communication, and coordination
- Methods - expert systems, quantitative models, heuristics, paperwork, and participative management
- Guides and Rules - policies, plans, procedures, and instructions; and directives, constraints, specifications, conditions, and laws
- Precedents - history, culture elements, and social system
- Data-to-Information Chain - MIS (EDP, IS, etc.)

Figure 1.4.2.6.3. *A decision support system (DSS) is a closed set of management tools, working together synergistically to support the decision making process. This statement for DSS differs from the traditional definition originally made in the landmark paper by Gorry and Scott Morton in that all data-to-information converters play a role in decision support, not just computer-based management information systems.*

1.4.2.6.4. EACH MANAGEMENT SYSTEM MODEL COMPONENT PLAYS A UNIQUE ROLE

From the systems perspective, each component of the Management System Model is essential in helping the system achieve its aim: success through balance.

From Figure 1.1.18.1.3. we see that if we fail in any component, we fail in our responsibility. In the management system, no component is an island. While operational performance is measured at the what is managed component, organizational performance is also a function of who manages (personal performance) and what is used to manage (management tool performance).

In addition to being essential to balance the management system, each component plays a unique role in the system. We consider capital, labor, materials, equipment, and energy as the input and output of what is managed and measure operational performance there. Data and information linkage with other management systems that include ours, are included in ours, or are in parallel with ours, occurs through what is used to manage tools such as organization structures, communications (formal or informal, routine or non-routine), and the management information system.

Forcing Functions

The who manages component is the forcing function for the operation, or work process. Most change is initiated there. When the system is in balance, who manages will want better information to make better decisions and the system will mature.

A key to continuous performance improvement is through the who manages component as the internal forcing function. When the Management System Model (MSM) is in balance, the manager is getting exactly the information he or she needs (The information properly reflects the what is managed component.)

exactly the way he or she likes the information. (The portrayal matches the preferred perception.) Even when the manager is happy with the balanced management system and his or her information input and action output, he or she will want to make an improvement. By making an intervention, the manager makes the management system out of balance, and the work process and the management tools must adjust to provide the manager the information he or she needs. In this way, the management system keeps moving to better and better levels of performance.

Since the management system isn't a closed system, the environment will act as a forcing function on the domain of responsibility. From the control loop analogy in Figure 1.1.21.9., we recognize that the environment can act on the who manages through the reference input and on the what is managed through a disturbance. The who manages looks to the environment (the stakeholders, usually the customer) to determine the needed operating level for the system. Then the who manages compares the reference input (voice of the customer) to the information about the work process (voice of the process) to determine how to act on the operation. (See the small circle, the comparator, in front of the controller in the control loop analogy in Figure 1.1.21.8.). Disturbances to the system are felt in the capital, labor, equipment, materials, and energy parts of the operation. When the person who acts as the who manages component isn't making decisions but, instead, is doing something, he or she becomes part of the labor in the operation. In that way, a disturbance first felt by the who manages component is felt within the what is

managed component.

As I carefully distinguish among the three MSM components, I'll remind you that when I derived the MSM, I artificially separated the components. That is, the differences among the components aren't as distinct as I imply, and to touch the system anywhere is to touch the system everywhere.

The tools (computers, for example) aren't the forcing function for either the system or the age of information. The forcing function for the age of information is the need for more, rapidly-changing information as manifested through who manages. As we'll see shortly, computers and other products of information technology do more harm than good if they're taken as cure-alls that can simply be added to

a managerial domain without being accurately and precisely *fitted* into it.

Especially with computer-based systems, we hear of successes of other managers, and we run out and buy that system. As in Figure 1.4.2.6.4., a salesman appears at your door and says, "I have an automatic this or that. Do you want one?" You remember you're doing this or that and you buy one. How many times do we begin with a tool obtained almost at random and, because of that investment, try to convert our operation, our management style, our other tools, and the new tools we buy to suit the original purchase? How often do we ignore the real needs of the operation and the need to understand our management system well enough and from the proper perspective so the tools will work?

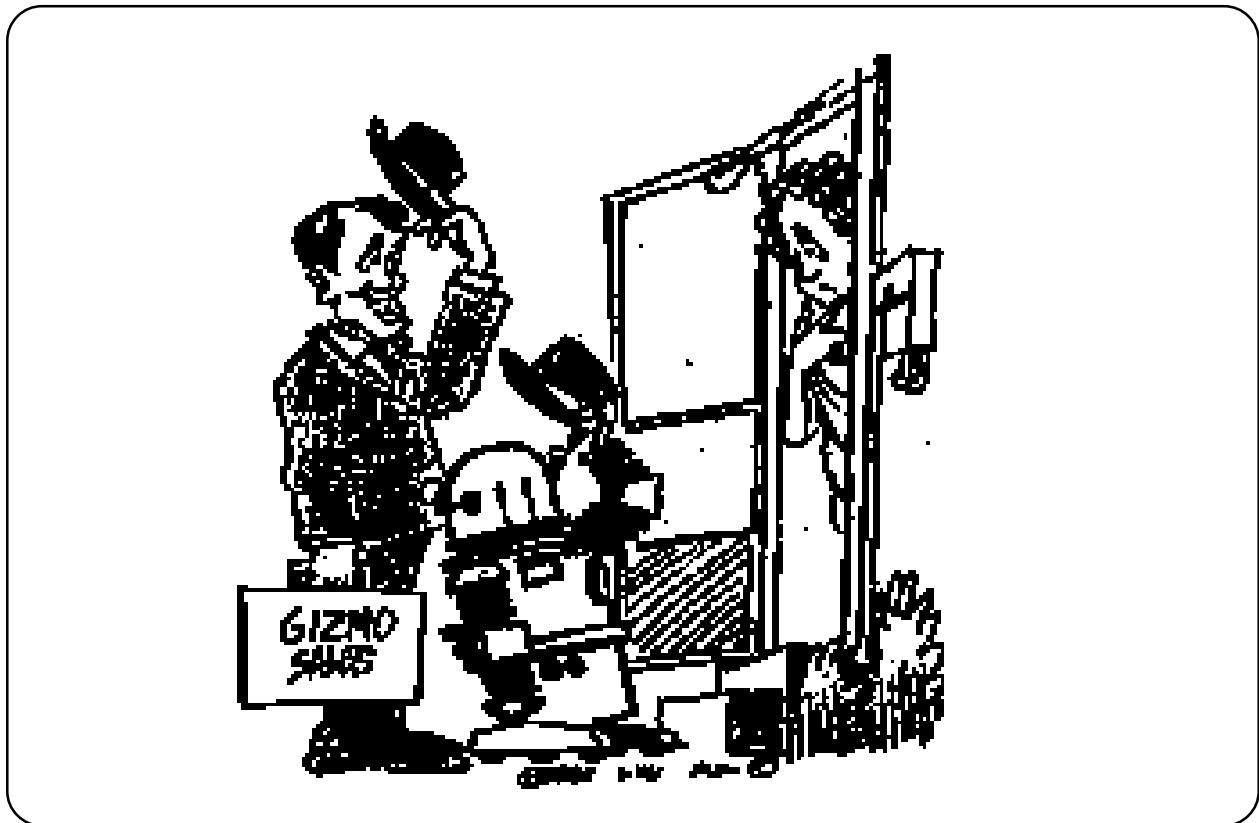


Figure 1.4.2.6.4. "Howdee. Take in the little guy and your house will never be the same."

1.4.2.6.5. EXERCISE ON MANAGEMENT SYSTEM MODEL COMPONENTS

To delimit a domain of responsibility and to build and use management tools for the domain that are useful to the decision maker and that faithfully reflect the operation, you have to identify each of the components for the domain.

Explanation

You should see domains of responsibility, or management systems, all around you. Some are large and some are small. Within your domain, you have several subdomains: your work, your family, your community service. You want to get practice at being able to delimit domains and identify the three essential components in each domain. You should also be able to identify the aim of the system. In the example below, you can see an identifier for a domain and the three components and the aim for the system. In the example, the management system is a single class, as contrasted with a course, or discipline, or a group of students. If the management system was one of the alternates I just listed, the components would most likely change. The focus of the system would change to something besides one room with students using texts to prepare midterms, etc. There is but one who manages. There are any number of things that make up the operation. Those I've listed give a range of physical things within the domain of responsibility. There are also many management tools. I've listed a variety in the example.

Example

Recall the classroom example from Module 1.1.14.4. I'll use a specific class here.

Management System: ISE 4015 (Index 7151)

Who Manages: Harold Kurstedt

What is Managed: students, texts, class room, visual aids, etc.

What is Used to Manage: syllabus, roll, drop/add forms, homework, midterms, etc.

Aim: to teach management systems engineering as an approach for dealing with the world

Exercise

List ten different management systems and identify the three essential components and the aim for each domain of responsibility.

Thought Question

My example clearly was from the perspective of the teacher. What would change if we looked at ISE 4015 (Index 7056) from the perspective of one of the students?

