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MENUING SOFTWARE: APPLICATION TO

THE GENERAL MANAGER'S NEED

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Abstract

This paper demonstrates a robust approach to general manager computer use. The approach is shown to systematically integrate a diverse collection of user selected applications. It is implemented through the use of currently available shareware and public domain software at low cost.

The developed prototype follows accepted psychological choice, Management Information System (MIS) and/or Decision Support System (DDS) principles. It is easily modified by a user, said to be any general management team member, as the environment changes. Team member roles, concerns, styles, and interests can be accommodated in the design or re-design.

The prototype and approach is friendly to occasional users. One basic installation can serve several users. It will work on a network of computers. It offers a sense of staying in control to the individual. Complexities of application choice and access are hidden. Data transfer between applications is automated.

Extension educators and business consultants can also use a similar approach for accessing a wide variety of applications.

Further work will likely improve the basic approach. In the meantime, the gain from using this approach as it stands is quickly available.

Menuing Software: Application To the General Manager's Need

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Introduction

Observers have noted that users of personal computers rarely use more than half a dozen applications. This is consistent with the classic psychological finding that people are able to deal with only seven ± two choices (Miller, 56). Psychologists have consequently argued that complex situations need to be reduced by "bundling" or "chunking" the choices so that each set a decision maker faces contains no more than nine choices.

How then can general business managers, including farm managers and those who counsel with such people, apply this principle in the development and use of integrated decision support systems (IDSS)? There are many software applications seemingly applicable to the frequently changing concerns of general managers. "General Manager" refers to a decision maker who works at the chairman of the board and chief executive officer levels. Their activity cuts across the management functions of planning, organizing, producing, marketing, financing, etc. What can be done to assure that the decision maker -- the user of such systems -- has easy and expedient access to the appropriate application software which appears to be economically effective in dealing with the vast array of problematic situations faced in the conduct of business affairs?

Bundling of application choices should consequently encourage the use of decision supporting application tools. It is the thesis of this paper that menuing software coupled with terminate stay resident (TSR) desktop organizers offer great potential for managing such systems.

As has been discussed elsewhere (Fuller, 71, 82, 83, 87) (Harsh, 87, 88) (King, 85, 88), appropriate design of the farm computer system should turn it into a management information and/or decision supporting tool for general managers. Appendix A offers a synoptic summary of this literature. The reference list attached to this paper also surveys literature that relates to farms. Easy access for all members of the farm family, or management team, involved in managing and controlling various aspects of the business and home complex through computing is the objective of this exercise.

Some Underlying Principles and Premises

Access should follow basic management information system (MIS) and integrated decision support system (IDSS) principles (Fuller, 83). The access system should recognize intellectual limitations. An occasional user should find it workable. Many applications are used only infrequently, and all who use them would be considered occasional users. Other applications, like accounting, while more frequently in use by at least one member of the management team, should also be quickly accessible without undue additional action steps on the part of any frequent user. Software reviews have frequently made these same points.

Someone must design and maintain the firm's data base. Software is available that integrates a word processor, a data base system and spreadsheet software. Though integrated software applications facilitate the transfer of data files and analysis between applications, they are not a complete general manager system. Development of new applications will continue to limit the validity of general purpose integrated software systems for general managers. Even if the farm computer system contains integrated software, ways to approximate the same data transfer capability needs to be easily available so as to offer similar integrative capability in the use of other applications.

In a similar fashion, access to TSR software with "pop-up windows" to facilitate the access to, and to make frequently required reminder notes, connect to the phone, transfer data, and check calendar schedule, etc., should be part of the general manager system. Convenient access during the processing of data in other applications is required for a truly "Decision Supporting Formalized Management Information System" following MIS and/or IDSS principles.

Requirements For the Prototype

This paper reports the investigation of the requirements for, and development of, a prototype software system containing the attributes suggested above. Reproductions of the prototype screens involved and a discussion of how they function will appear later. It illustrates how such a system might appear to a user. It is not intended to be prescriptive for any particular business but to illustrate how such systems can be developed for or by general managers. It also demonstrates how they can be modified as experience is gained through use.

While the paper focuses on a farm prototype, the same components of software and the same principles of organization seem to hold for the use of many if not all users of such systems. Appendix B sketches an Extension office prototype. (The content of this paper may be of lesser direct interest to "power users" and to those doing developmental work.)

SELECTING THE MENUING SOFTWARE

A number of menuing programs are designed to facilitate access to user selected applications stored on the hard drive of a personal computer. Some are sold through regular commercial channels, others are shareware programs, and still others are in the public domain. The author has examined several of these programs in the process of developing this paper (HDM, AUTO MENU, MENU?, PC MENU).

The author has also developed a less versatile though still flexible menuing system which works well with and under the control of the one selected for this prototyping exercise. It handles an unlimited number of applications grouped along a specified subdirectory path (Fuller). This experience indicates that "shelling" to batch files holds the key to menu development.

Schmidt (NCCI Quarterly, '89) reviewed "the cream of the menu program crop". His selection is not the one used. The primary reason was its lack of application bundling. His might still be considered a less expensive option for some installations. Both allow ample flexibility and easy revision of how the screens are presented.

These menu programs permit customization of a computer system. They are primarily applicable to a hard drive system. On systems without a hard drive they must prompt the user to be sure that the correct disks are in the correct drives as they operate.

The Software Alternative of Windows and Shells

A wide variety of software "platforms" that accomplish many of the ends intended in this paper are available. Some are called "menuing programs," the focus of this discussion. Others are termed "shells." Still others are termed "windowing programs." Some, particularly windowing programs, encourage the use of a mouse-oriented applications to make selections between the software choices and to activate those choices. Others are more inclined to rely on the conventional keyboard but may emphasize the use of the arrow and function keys. Applications are on the market which are specifically designed to work with "windowing platforms."

The kind of use or application intended probably has a great deal to say about which of these choices in software is the preferred one. Windowing programs seem to be preferred by eight hour a day office workers. The literature sometimes calls these users "knowledge workers." They are often assigned to work with data maintenance and processing using a limited number of applications in a large corporate organizational setting. These users may need to switch between applications before completion of a routine task. To serve this need, all-in-one or integrated software systems have been designed that cut learning time for knowledge workers. They are sold as "immediately workable."

Shells tend to emphasize the isolation of the user from the need to be familiar with DOS command operations used to back up disks, format disks, locate particular files and either copy or edit those files. Managers of data bases and "power users" like them.

Management Problem Solving Usage

Neither of these situations seem to apply to the kind of sporadic use that seems typical of general managers. Farm or other small businesses are run by general managers. Here any knowledge worker is often a member of the general management team for that business as well. Not only is use sporadic, but often the same hard disk is used by several members of the farm family and/or management team. The sporadic nature of use requires a greater level of prompting of more choices to remind the user what various applications can do. Different users are likely to have an interest in other applications but the same general needs. As the prototype illustrates, 100 applications or more may be involved.

Some applications offer decision support related to what, when, why, where, and under what circumstances, etc. questions. The reader may want to refer to (Mdhizou '85, pg. 18), which offers a perspective on dealing with these questions. Some deal with problems which are reasonably well structured but others, like data storage and retrieval, may apply to poorly structured situations as well. This is where menuing programs seem to come into their own. Organized menuing systems can be of considerable help in clarifying a question or problem or in understanding the related opportunities and alternatives in an expedient manner. To accomplish these ends the menuing needs to be done in a way to help users clarify the problem as they move through the menu structure. This is not easy to do. Studies have shown that managerial problematic perception does not necessarily follow pre-specified problem classifications (Johnson, et al., 61, esp. Mawby).

Menuing offers a "High Touch" component to the "High Tech" of computer use by general managers. It allows individuals to dynamically design the menus to personal style, concerns and interest. The user remains in control of the system in perception and in fact.

Data Base Access

The system needs to be able to store and access data from the accounting, production control or similar on-site databases. It also requires easy access to data accessible from other off-site sources such as market activity reports. Key word reference to materials contained in paper files on site or in libraries, or research in progress files is another possible application. Once accessed, selected data may be used by several applications.

A Background TSR Desk Top Pop-Up Component

A workable system needs the ability to move data from one application to another in spite of differences in structural form or design between the applications. Consequently, a utility package which can quickly and easily move data is required.

Other desk top pop-up utilities such as verbal phone and remote computer access, a calculator, calendar, or note pad, etc., can also be useful for many users.

Components to accomplish these ends exist and should be part of the computer installation. The user should be reminded of their content and how to access them on the menu screens. How to access these features is described in the top box of the prototype system screens. Memory and hot key conflicts must be avoided.

Fuzzy Problem Analysis

There is merit to the incorporation of applications based upon developments in artificial intelligence. Such applications will include access to expert systems intended to deal with qualitative analysis as a substitute for quantitative analysis. More ideally, expert system use should be structured in the system to compliment more quantitatively based analysis of available data concerning the better structured components of a problem (Fuller, 87).

Organizing a Menu Driven System

The fundamental idea behind menuing programs is batch file (.BAT) structures. If the reader is not familiar with the uses and structures of batch files, it may be wise to review a DOS manual. Most menu programs set up a special file which stores the equivalent of a set of batch files, one for each item or application option specified, such as accounting, word processing, etc. Many menuing programs also provide a prompt for each application that informs the eventual user what the application does. If necessary, other prompts follow to help the user select a specific working file or set of files to go with that application. As the technology matures to do so, the automatic capture of production process status could be added to the applications outlined here.

The menuing program manuals vary in clarity and organization. However, if one keeps in mind the notion of .BAT files and menu prompts, and uses the on-line helps or manual to set up a system, the programs work. Good ones have reasonably complete on-line set up prompts. They also allow for easy modification or correction of error in the prompts and .BAT files.

Useful Design and Set-up Techniques

It doesn't matter very much how a hard drive has been organized prior to the implementation of such a menuing system. The person who sets up the menuing system must, of course, be aware of the hard drive sub-directory content and any

existing batch files which are there to implement any of the applications contained therein. It would probably speed matters in most cases to use a utility program such as SDIR (sorted directory) to obtain a paper listing of the organization and content of the sub-directories of use and interest before set-up occurs.

Suggestion on Paging or Ordering the Menus

Priority should be given to programs of frequent use by the eventual user(s) as the menu system is specified. Common use applications should normally be the first ones displayed by the system and consequently may require less action on the part of the user to find and use them.

In the case of a farm, probably the first and second priority should be the accounting system and the major activity control systems. The latter will depend upon the type of farm (Fuller). In the case of a swine farm it could be the swine record data base including, presumably, calls to action concerning problem alerts and management by exception reports.

In the case of the dairy farm, it would be a similar system except for that enterprise. For some irrigation operations it could be the irrigation controlling system. Programs of this general nature should have priority in any event. In some cases there may be more than one control system, including, for instance, pest alerts and/or related spraying schedules. The key idea is to give priority to applications of frequent use which also assist in the management of ongoing operations on a frequent basis.

Once the frequency of use criteria for ordering the choices has been implemented, more occasional use applications may be assigned priorities in the resulting menu screens in whatever manner seems consistent with the type of choices the user (management team) might make and how they might perceive the related decision to which these applications apply. They might be sorted by application or by related management activity. For instance, all spread sheet applications might appear together, or they might be dispersed depended upon the characteristics of the applications and the kinds of applications of interest.

Fortunately, it is not necessary to determine the absolute structure of any these screens in the prototype prior to initial set up. Most menu programs offer easy ways to modify the location and order of how and where a particular application appears. They can be moved from screen to screen as experience in use suggests.

These same principles hold for other general manager applications besides farms. They are appropriate for any user whose applications exceed a half a dozen or so. Such systems provide a way of branching through an elaborate set of choices and offer users an orderly way of categorizing and accessing those choices.

Consistency in User Interface

Menuing systems require little in the way of keyboard and screen consistency between application software packages. An ideal system would make similar use

of function keys, space bar, escape key, etc. throughout. In the dynamic world of continuing rapid software development and varying management styles, any argument for absolute superiority of a particular user interface design is not possible. Besides, even if one were to establish one, if that system were to exclude newly discovered application packages it would be most unfortunate.

Applications are preferred which contain adequate online screen documentation to permit the majority of uses to be done without reference to paper documentation. In many instances, related documentation files accessible on line for particular applications is a preferred component to the system. The applications in the prototype work well together.

The Addition of Newly Acquired Software Later On

The menu system should be viewed as a dynamic entity. It should also be easy to modify as further thought and experience shows changing priorities in terms of use and the benefits derived therefrom. It should be possible, as new software packages are acquired or new uses are found for existing packages to incorporate them. It should grow with the interests of the individual user or management team. The data transfer components should work as new software is acquired. When need be, menu modification and access should be restricted by password to designated users. The prototype illustrates this feature (password IM).

An Illustrated Farm Situation Example

The pages to follow are primarily a set of computer screens presented to the user. They illustrate a theoretical farm prototype with some variation. They represent a rather detailed system of far more choices than a typical new user would probably even want to consider. This was done to illustrate and test the possibilities. The menuing program used is Hard Disk Menu IV (HDM), a shareware package obtainable from a variety of shareware sources.

Explanation of Content of the Entire HDM Menu Screen

A typical HDM screen is shown below. Date and time are at the top. Then lines define 3 boxes. The top box contains reference notes specified by the. In this prototype it is used to remind the user how to access the RST programs which pop-up notes, calendars, calculator and move data between applications.

The 2 lower boxes may be swapped left to right by the F8 key. One box displays up to 10 menu page titles describing the major sub-categories to the menu. These may be modified at will by the designer/user. Up to 100 such menus are possible. Each can have a slightly different appearance due to colors, etc.. The one in use is noted at the bottom of this box (HDMENU.TOO). The .TOO one is the "main" one. Each menu can contain up to 100 applications!

The other and larger box displays the selectable action items from one of these pages. The user selects an application by keying in the page letter and item number. The currently highlighted item is also selectable with the ENTER key. The current selection is also shown at the bottom.

Function key options on the bottom line offer helps, a HDM system exit, or the way to modify a menu, change the display etc.

Illustration Of a Complete Typical HDM Menu Screen

```
Saturday, February 17, 1990          12:11 PM
-----------------------------------------------------------------------
    Hot Key Notes: Use the ALT+V Keys to start Desk Top Pop-Ups (ESC to exit)
               : To cut &/or paste type ALT+Q, look for a special cursor,
                 use <CR> to anchor it, arrow keys to move it,
                 then <CR> pops a menu to File, Print or Store & Get it
-----------------------------------------------------------------------
       PAGE INDEX       |    HARD DISK MENU : RELEASE IV : VERSION 1.20
                        |
   A Accounting, Records| 1 Do Accounting Data Base Operations
   B Budgeting & Finance| 2 Do PIGCHAMP  (Swine Control System Data Base)
   C Check Market Plan  | 3 Type a Note or Letter (Word Processing)
   D Database & S.Sheets| 4 Record Field & Crop History or Analyze it
   E Enter Phone System | 5 Reduce Work Related Stress (Take a GAMES Break)
   F Farm Reference Data| 6 PC-MARS   - 2nd Accounting System -in test
   G Get trial Programs | 7
   H Home Side          | 8
   I Inquires & Tutorials 9
   J Jump to other Menus| 0
                        |
      HDMENU.TOO        |    [_] <-- Key in Entry Number.   Enter=Select A1
                        |
   F1=Help F3=Exit F10=Menu|
-----------------------------------------------------------------------
```

Comments on the User Specified Note Box

Hot Key Notes: Use the ALT+V Keys to start Desk Top Pop-Ups (ESC to exit)
       .   : To cut &/or paste type ALT+Q, look for a special cursor,
       .   use <CR> to anchor it, arrow keys to move it,
       .   then <CR> pops a menu to File, Print or Store & Get it

---

The comments above relate to using the TSR (terminate, stay resident) packages DESKTEAM, a shareware desktop utility, and SNIPPER, in the public domain. Other utilities were tried; SIDEKICK, PRODEX, HOOKIT and HOMEBASE in various combinations. To date this is the only combination found without dysfunctional conflicts with other software in use by the author. It is a fairly robust combination as it stands. HOMEBASE does contain a somewhat superior set of features.

Further search may uncover a still better combination, particularly for the access of reference notes, and to make data cutting and pasteing functions between programs easier to do.

The RST Desk Top Component of the System, (ALT+V) followed by F6 then by F5, and the name PADNAMES.PAD, displays the list shown below. Other features are accessed in a similar fashion. They include a calendar, calculator, phone, DOS, an alarm, and a typewriter.

Description of the Notepads in the prototype system:

Note: PADNAMES.PAD

ASCII .PAD	Symbol codes
METRICS .PAD	conversion formula
PHONE .PAD	names & numbers
STATEZIP.PAD	Zip codes
CALENDAR.PAD	appointments etc.
FAMILY .PAD	birthdays & phones
ACTO515 .PAD	area codes up to 515
ACFRM515.PAD	area codes after 515
HOLIDAYS.PAD	Special days
LABORREG.PAD	Regs about employees
REMINDER.PAD	Misc. notes
TODOLIST.PAD	Current action plan

SNIPPER, when activated, moves selected data "cut" from any screen to file, to the printer, or to a buffer for "pasting" or data entry into another. It offers a workable solution to the problem of data transfer between applications. HOMEBASE has this feature as an integral option.

Comments On The Screens of the Prototype Menu

The prototype menu was designed for the "I. M. Friendly family." This was viewed as a typical "computerizing" Minnesota farm family. There are 2 school age children in the family. The children can use the word processing features for school work. Their school work also requires a knowledge of computer programming. Some tutorials are included. So are some games, some of which are educational, dealing with words and numbers. If desired, the data base can be used to keep 4-H project records as well.

The parent's farm grows hogs, corn and beans. As a management team they share record keeping chores, marketing and many other decisions. Like any family they need a record of and access to a variety of personal papers, dates, etc. as well as a set of data files related to the business they operate.

They have their own approach to the challenges of management. Their beliefs, values and goals are their own and play a role in setting the priorities in the use of time and the data deemed of sufficient value to be worth recording and using as part of their "Integrated Decision Supporting System." This prototype is about formalizing a key component to that IDSS by tieing many of the parts together. It represents only part of their total management information system, formal and informal.

New application software, improved data capture technology, and new knowledge based upon both experience and research will offer opportunities for improvements in the system as prototyped here. Changes in goals, the economic environment, and the interests of the family will likely require it. In any case the system illustrated here should be workable and is an easy one to change. They can modify it quickly. It takes less than one minute to change or add a menu item! It displays bundled sets of choices. It offers access to many applications when there is a felt need for access. Little must be kept in an person's memory about how to access the software components of the IDSS with a menu system like this.

Menu Page by Menu Page Comments

The pages that follow illustrate the menu pages of the prototype. They are presented in menu page order. Remember that page order, page definition and menu item specification can quickly and easily be changed by the user at will, provided that they have not been passworded as they were set up. Only the completed part of the selectable action items box is shown.

I. M. Friendly Prototype Menu, Page A, Accounting and Records

The 1st page displays the applications that are likely to be used most frequently. This serves as a reminder that timely data capture is necessary to make an IDSS useful. Applications with data file options guide users to the file name and location.

No one lives for work alone, hence the games option. Besides some of the games which are displayed by the set of sub-menus that follow when games are selected are truly educational. Not only that, but for prototyping purposes, they illustrate the workability of graphics within the system. Both of the accounting systems are under test. Both contain many sub options including payroll records. The one not selected can be removed from any menu later.

```
1 Do Accounting Data Base Operations
2 Do PIGCHAMP  (Swine Control System Data Base)
3 Type a Note or Letter (Word Processing)
4 Record Field & Crop History or Analyze it
5 Reduce Work Related Stress (Take a GAMES Break)
6 PC-MARS  - 2nd Accounting System -in test
```

Page B, Budgeting and Finance Decision Aids

This page probably contains some applications of little interest to most new users. They have been included in the prototype, as were some items on other pages, to illustrate the possibilities. Common farmer knowledge is adequate for the use of many of MINNAIDS and similar partial budget decision aids that appear if the 1st option is selected. FINFARM has a similar objective. The other items may require more training or background if effective use is to occur. The effort and cost may not be worth it at this time for people like the Friendly's.

```
1 MINNAIDS etc. - Use a Computerized Decision Aid
2 FINFARM  - An Under Development On-Farm FINPACK
3 FINPACK  - Extension, VoAg, FmHA, Consultant Vr7
4 PVBUDGET - Present Valued Partial Budgeting
5 BUD      - Calculate Crop Budgets
6 SMALLP   - General Purpose Math. Programming
```

Page C, Make and Control the Marketing Plan

Many studies point out the importance of developing, monitoring, and following an objective marketing plan. The plan is that Mrs. Friendly will take major responsibility for marketing. The items displayed are not all that should be considered. The plan is to add more items to this page. She will be able to reorder items on the page as experience suggests. The page also shows how a "double spaced" page would look. Lines can be skipped in any menu page.

---

1 Analyze Current Marketing Plan Status
2
3 ARMS - Risk Management Simulator
4
5 Check The Markets (Dial up the market report)

Page D, Database and Spreadsheet Applications

Items on this page are general purpose in nature. They can serve a variety of uses. In fact the first item appears again on Page H as 2 family items. Items 2 and 3 use the same software. These applications start with a reminder message of the location of data files related to them. Item 4 and 5 search reference files based on key words and phrases. Item 4 appears on page G also. Items 4 and 5 deserve further examination. They offer assistance in "fuzzy or ill defined" problem situations. Along with artificial intelligence and expert systems, they may become the most important component to some general managers. Item 5 is another application said to be on trial. Given other options it may be a redundant application. If so, it can be removed in less than a minute.

---

1 Start, Update, or Analyze a Structured Data Base
2 Tax Planning Worksheet
3 AS EASY - /File/Dir & /Retrieve to get file
4 ZYINDEX - Search & Retrieve text material
5 RECALL(.) or Make(+)/Delete(-) Notes & Reference

The reader is reminded that a number of well rated data base, spreadsheet and word processing systems are offered in the shareware market. These can be tried out before purchase. Prices are usually less than $100.

Note: Page E is not shown. It requires specific communications protocol development. Software was available but not tested as part of this exercise. See HDMENU.T78 for suggestions.

Page F, Farm Reference Data (An Electronic File Cabinet)

How much Reference data should be stored on a hard disk is an open question. Some possibilities are listed below. If they are used infrequently, then perhaps only a key to their hard copy file location would serve as well. However, as CD-ROM technology drops in price there will be a need to re-think how to store and access such material. Code consistency between the hard copy filing system and the electronic one will help. And data backups must be considered for the entire system. Item 4 uses the word processing software to quickly think through the issues and prepare a draft document. Items 7 and 8 do calculations based upon the user's need. Thought needs to be given to how reference data can be used along with expert system analysis etc. when one is faced with poorly defined or "fuzzy" concerns and problems.

```
1 WEEDIR   - MN Weed management data base
2 BEANAIDS - Cultural Practices for Soybeans
3 Animal Facts, a reference list for livestock
4 Contract and Business Agreement Mock-ups
5 LISTBUDG - Retrieve Existing Crop Budgets
6          - See Specialty Crop Input Prices
7 FACILITY - Livestock Facility & Labor Estimates
8 Grain Drying & Storage System Engineering
```

Page G, Get On Trial Programs

Just as there are no finished software programs, there are no finished formal
components to a IDSS and/or MIS system! Many of the items listed could be
incorporated into the decision aid sub-system (MINNAIDS) shown on page B.
This prototype page suggests some possibilities available from several Land-
Grant Universities. The North Central Computer Institute at the University of
Wisconsin, Madison has an extensive list. Their list and bulletin board also
contains selected shareware and data on other software available from them or
other distribution sources.

1 Neb PC-COW CARD
2 N.D. Vet. Dosages Calculations
3 Mo. Irrigation Scheduling Aid
4 Mo. Fence Construction Estimates Aid
5 Wis. Potato Crop Monitor/Manager Aid
6 MSU SOYSYS - Soybean Tactical & Control Aid
7 BEAN AIDS Bean Disease Diagnosis & related
8 MN Answer U data base
9 MN PORKCHOP - Sow Culling Decision Aid

Page H, Home Side Applications

Household accounts may not require separate treatment from farm accounts. The
inventory and address lists may use the same DBMS software as the farm. The
listed .PAD file is also available through use of the RST desk top (ALT+V then
F6 or F7).

1 Household Accounts
2 Household Personal Inventory
3 Christmas Card Address List
4 STAIN   - Removal of fabric stains
5 See or Dial Family (.PAD) Phone Numbers
6 Yard & Garden Data Base
7 All About Us, Family Paper's System
8 Use PC-File to access the Family Tree Data Base

Page I, Inquires and Tutorials

What, if anything, should appear on such a page depends upon the family's interests and felt needs. These are reference and educational items.

```
1 HELP - An On-line Dos Manual & Use Reference
2 TUTOR - Teaches You About The Computer & MS-DOS
3 Professor - Teaches You To Write BASIC Code
4 BASICDOS - Teaches BASIC Commands and Their Use
5
6 MANAGE - A tutorial on time & communications mgt
```

Page J, Jump To Other Menus Etc.

Here too, this particular page might be of little interest to many farm families. But this prototype does illustrate how access to DOS commands and to the other 99 possible menus is possible. Incidentally, access to the previous menu or screen in HDM is obtained by pressing the ESC key.

```
1 Type a file
2 Check Available Memory
3 Go To Menu No 10 (Sidekick farm Business)
4 Go To Menu No 20 (Homebase farm Business)
5 Go To Menu No 40 (Extension Office Prototype)
6 Go To Menu No 04 (Backup for Prototype Menu)
7 PARK the Hard Drive - ready to turn off system
```

The HDM Setup and Modification Help Screen(s);   Page A Displayed

Pages are selected by letter or arrow key and press ENTER

Help Page: Page (A) Content:
_____   _____

A How to use HELP   How to use the Help System   F1
B Installation notes
C HDM Startup options   A list of topics is displayed in the left window.
D How to use MAIN MENU   A description of the highlighted topic is shown
E MAIN MENU Keyboard   in the right window.   Active keys are listed below:
F How to use TOP MENU
G TOP MENU Keyboard   Up Arrow, BackSpc, PgUp Key: Go up one.
H MENU Pull Down   Down Arrow, Space, PgDn Key: Go down one.
I PAGE Pull Down   Home Key, - Key: Go to beginning.
J SECURITY Pull Down   End Key, + Key: Go to end.
K LOCAL Pull Down   Letter Key (A-U):   Go directly to topic.
L GLOBAL Pull Down   Escape Key: Return from Help.
M EXIT Pull Down   F3 Key: Exit from HDM to DOS.
N Menu Action contents
O Menu Action examples
P Menu Functions   This is a user supported program.   You are my best
Q Common keys & Mouse   distributor.   Please give a copy of HDM to your
R Useful Editing Keys   friends, upload it to your local bulletin board,
S Menu Error Messages   or take a copy to your PC users group for the disk
T Pricing Structure   librarian.   Thank you for your help.   Jim Hass.
U HDM Copyright Notice
Esc-Cancel F3-Exit

An illustration of How Pop-Up screens appears.   When the user wants to change
a Menu item, a Page, Local or Global menu appearance, etc.   The user moves the
cursor over a selected option and presses ENTER.   A box appears on the center
of the screen.   The one below is for Local:

      PAGE INDEX   HARD DISK MENU • RELEASE IV • VERSION 1.20

A Accounting, Records   1 Type a file
B Budgeting
C Check Mar Single lines   Double lines   Bold lines   No lines   ess)
D Database   ess)
E Enter Phone System   5 Go To Menu No 40 (Extension Office Prototype)
F Farm Reference Data   6 Go To Menu No 04 (Backup for Prototype Menu)

The menuing software MENU.EXE used to control this component is not part of HDM.
It is public domain, and works with any set or sets of applications stored in
the path specified in the HDM item. A MENU.DOC file is available as well. It
tells a user how to use COPY CON or an editor to write a MENUFILE.TXT file for
each pathed sub-directory related to the one storing MENU.EXE (\MNAIDS) in this
example. If there are any sub-directories, the screen below appears:

:\MNAIDS   Looking for Sub-directories
What number corresponds to the sub-directory you want to use ?

     0 - Use this directory instead of any sub-directory

     1 - BUSINESS   2 - CROPS   3 - LIVESTOC(k)

Type a number from 0 to 6 or <ESC> to Quit the system ? 1

    (Then if the User Asked for BUSINESS the next screen shows):

Run   Program   BUSINESS & FINANCE   Disk / Directory
No.   Name   ------- Choice Descriptions -------

 1 MACRS89   - 1989-?? Depreciation calculations with present values.

 2 FARMBID   - Determines the Maximum Bid Price for Land or a Farm.

 3 DEBTCAP   - Determines the Maximum Debt Carrying Capacity of a Farm.

 4 QUCKLOOK - A Quick and Dirty Farm Business Analysis Based On Limited Data.

 5 TIMEVALU - A Set of Present & Future Value Analyses for Loans & Cashflow

 6 USERDOCS - Explains How to Make Hardcopy Documentation of MINNAIDS.

    Type <ESC> to Quit, or
    Type a selected 'Run No.', or use the (arrow) keys, followed by <ENTER>

(Or If CROPS Is Selected, The next Screen Shows:)

Run   Program   CROP PRODUCTION   Disk / Directory
No.   Name   ------- Choice Descriptions -------

  1   BESTCROP - Price & Yield Analysis of Crop Choices (Equal-margin).

  2   DRYSTORE - Calculates Grain Drying, Storage, Pricing & Delivery Economics.

  3   SPRAYERS - Field Sprayer Volume Delivery Rate Calibration Calculator.

  4   TANKCALB - Calibrates Horizonal Cylindrical Storage Tanks for volume.

  5   USERDOCS - Explains How to Make Hardcopy Documentation of MINNAIDS.

      Type <ESC> to Quit, or
      Type a selected 'Run No.', or use the (arrow) keys, followed by <ENTER>

(When LIVESTOCK is Selection the Next Screen Shows:)

Run   Program   LIVESTOCK MINNAIDS   Disk / Directory
No.   Name   ------- Choice Descriptions -------

  1   FEEDLOT   - Should I Feed Out Cattle or Lambs or Sell The Feed?

  2   FEEDPIGS - Should I Feed Out a Batch of Feeder Pigs?

  3   FEEDVALU - Given Corn & SBM Values, What's a Feed Worth ?

  4   NETGAIN   - Calculates Expected Feedlot Gain for Cattle

  5   PEARSON   - Balances 1 Ration Nutrient from 2 Feed Sources

      Type <ESC> to Quit, or
      Type a selected 'Run No.', or use the (arrow) keys, followed by <ENTER>

    When the user types ESC a return to the HDM system occurs.

    Note: FEEDLOT and FEEDVALU(e) are only of use if ruminants are
    fed. We will assume that the Friendlys have some 4-H livestock
    projects.

Content of the 1st Screen to Hard Disk Menu IV 1.20 (HDM) begins at the top with the date and time. The display of this screen is optional at the user's discretion.

Saturday, February 17, 1990   12:04 PM   Press a key to continue

The top box of the (optional) 1st screen to HDM is a User designed description of the overall application or system:

```
┌──────────────────────────────────────────────┐
│  The  I.  M.  F R I E N D L Y   Family        │
│          Rt. 4,  Box 90, Swanson Road         │
│             Scandahovia, Minnesota            │
│  (Prototype)                         56789    │
└──────────────────────────────────────────────┘
```

The bottom box of the (optional) 1st screen is an author reference and a reminder of the source and shareware conditions of distribution:

```
┌──────────────────────────────────────────────┐
│   JIM HASS        Registration Fee:   $35     │
│   P.O. Box 447    ~~~~~~~~~~~~~~~~~~~~~~~~~     │
│   Richfield,OH    Hard Disk Menu IV 1.20       │
│   44286-0447      Phone:  (216) 659-9489      │
└──────────────────────────────────────────────┘
```

This screen only appears if specified at initial access of HDM or via the ESC key from the primary menu screen.

Note: Appearance here of the author reference or other identifiable characteristics of either shareware package is not intended as an endorsement of these particular programs. Particular systems set up in the future might better be designed around other currently available or yet to be released software.   However, these components do work well, as evidenced by this prototype.

Author's Evaluative Summary Comments Concerning the Developed Prototype

Extensive usage says this is an immediately workable system. Learning time to be comfortable with it is short. The design is consistent with many of the ideals expressed in the IDSS and MIS literature. Choices are bundled. The structure is the domain of the user. The entire design allows modification as experience and use suggests.

As presented here however, there are more choices than would be of interest to many farm families, at least at the beginning of their on-farm computing. But the system can grow as their interests do. As presented here it outlines the possibilities.

Depending on hard disk capacity, some users might decide to keep some of these applications on floppy disks if use would be infrequent. It will also allow keeping data on floppy disks if that was deemed appropriate. It can be programmed to prompt the user to load the required disk when it is needed. The system can also be used to speed up and encourage the making of backup files from the hard disk.

The HDM and DESKTEAM shareware that runs the system costs less than $100. The public domain utilities are available without cost. The time required to set up such a system (especially if one has this prototype), should not be very great either. It can be modified a little at a time without taking much additional startup time. Experience in use will likely suggest enhancements which can be tested immediately (and perhaps discarded occasionally) at little time cost.

Other uses for similar systems exist everywhere. Use in an Extension office in particular looks promising. A prototype menu has been laid out to illustrate how this might be organized. This too is available from this author. The shareware components can also be shared freely. But the user is obligated to contact the developer and pay a registration fee to them if use is extended beyond a reasonable test period.

This is not a substitute for continued effort to develop well structured data transfer components to facilitate data searches or transfer between applications. Nor does it address the challenges of adaptive control and efficient data capture. These problems must still be approached application by application as long as a variety of application software is involved under a menuing system.

Less cluttered menu screens would also be an improvement. Even though the user may learn to focus on one box at a time, all three are always on the screen. Other menu programs may display less screen clutter.

Development was done on three 640K systems. Memory use was monitored. Space use conflicts occurred only if several copies of the same RST programs were inadvertently loaded. Hot keys were changed to avoid conflict with an editing program used for general development purposes.

Several graphic application programs were tested. Situations where a direct screen write conflicted with an RST display occurred.

20

Further research and development is called for. Case study work in an actual farm setting is already under way. Similar work in an Extension office seems appropriate. Testing with color monitors needs to be tried.

Use with expanded memory, extended memory, ram disks and spoolers should be tried. There is no reason to expect difficulties. General purpose programs to allocate memory between applications offer promise with expanded memory. Memory allocation software may also improve the ability to move data between applications.

The personal reaction of busy, action-oriented general managers to the ability to easily access a broad array of applications deserves formalized study as well.

It is likely that reaction will differ by discernible differences in interests, experience, training, and management style.

There are those who call for a minimum hierarchical structure in the large organization operating in the information age. If their argument is valid, the result will be many people cutting across management functions. It would follow that these people would have similar computing needs to general managers. Knowledge and access to it may be the key to successful management in the decade ahead.

Work of this nature creates an awareness of a need for complementary educational effort to increase general manager skills and knowledge about both the principles and tools of the managerial sciences.

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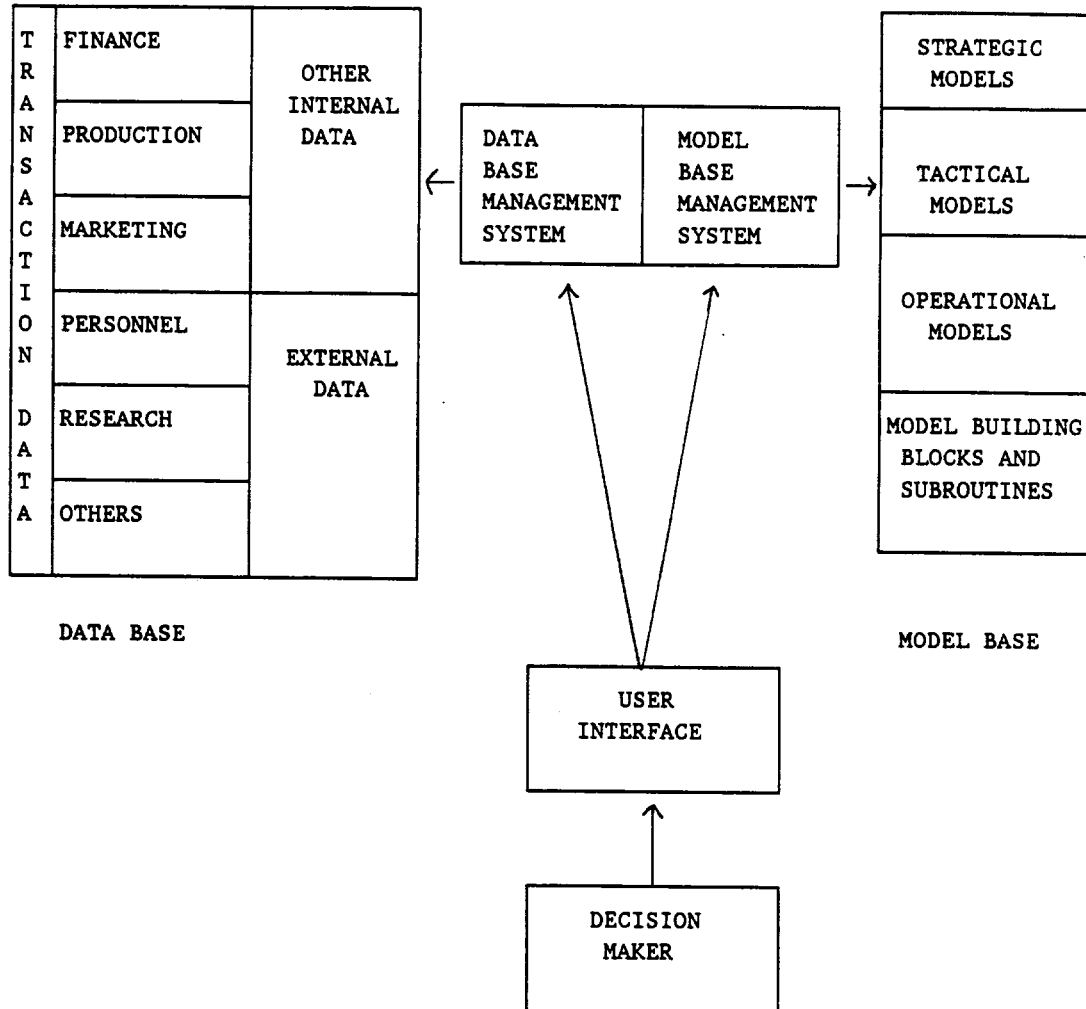Thomas, D.W. and Knight, D. "Analytical Process in Farm Management,"
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Diagramic representations of computerized components of a formalized farm
management information developed to provide decision support.

COMPONENTS OF A MODERN DECISION SUPPORT SYSTEM

T R A N S A C T I O N D A T A	FINANCE	OTHER INTERNAL DATA
	PRODUCTION	
	MARKETING	
	PERSONNEL	EXTERNAL DATA
	RESEARCH	
	OTHERS	

DATA BASE

DATA BASE MANAGEMENT SYSTEM | MODEL BASE MANAGEMENT SYSTEM

STRATEGIC MODELS

TACTICAL MODELS

OPERATIONAL MODELS

MODEL BUILDING BLOCKS AND SUBROUTINES

MODEL BASE

USER INTERFACE

DECISION MAKER

Harsh, '88, pg. 121
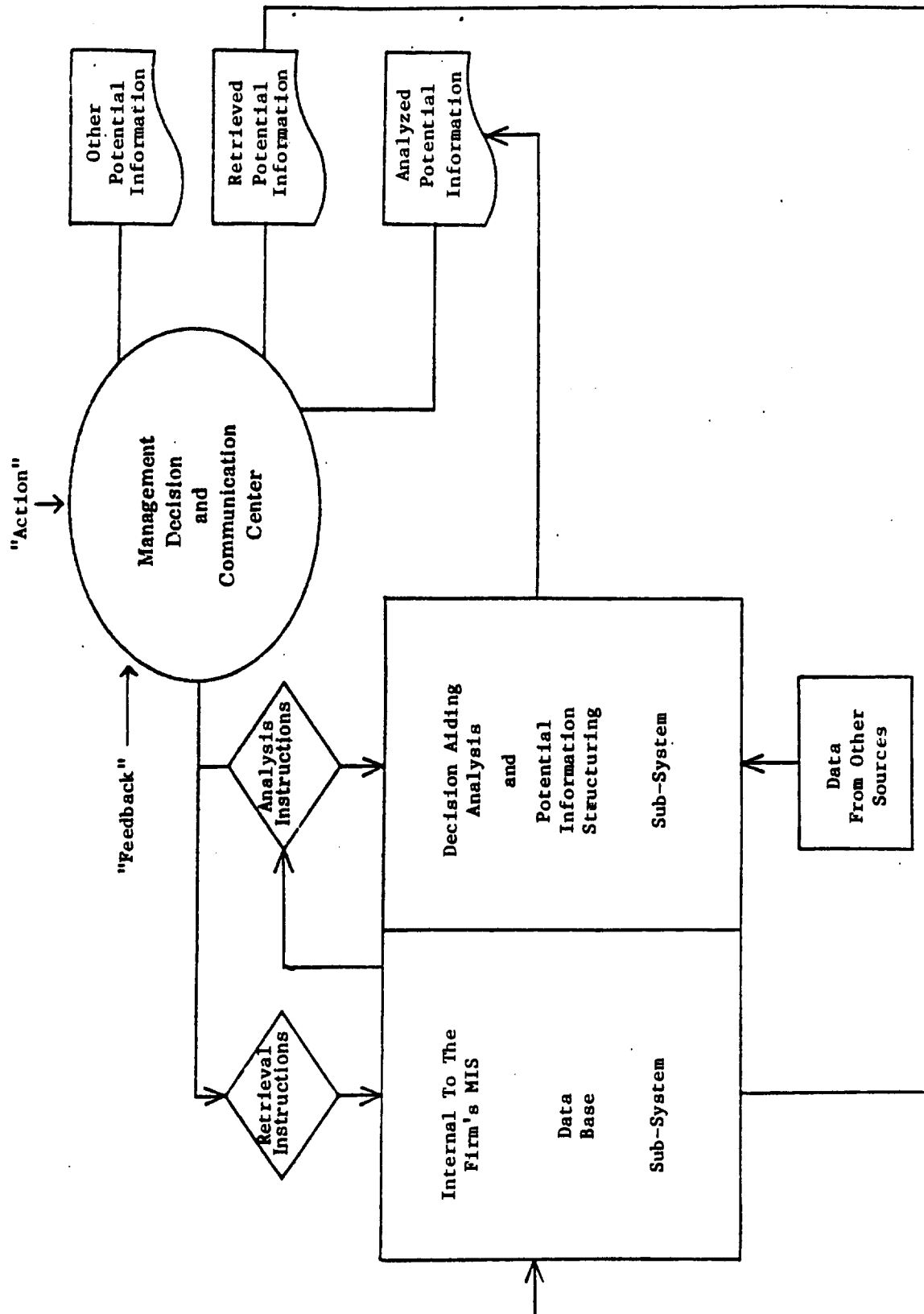
Potential Information Flows During and After Problem Specifications

Fuller, '72

Schematic of Information Network for IDSS Prototype
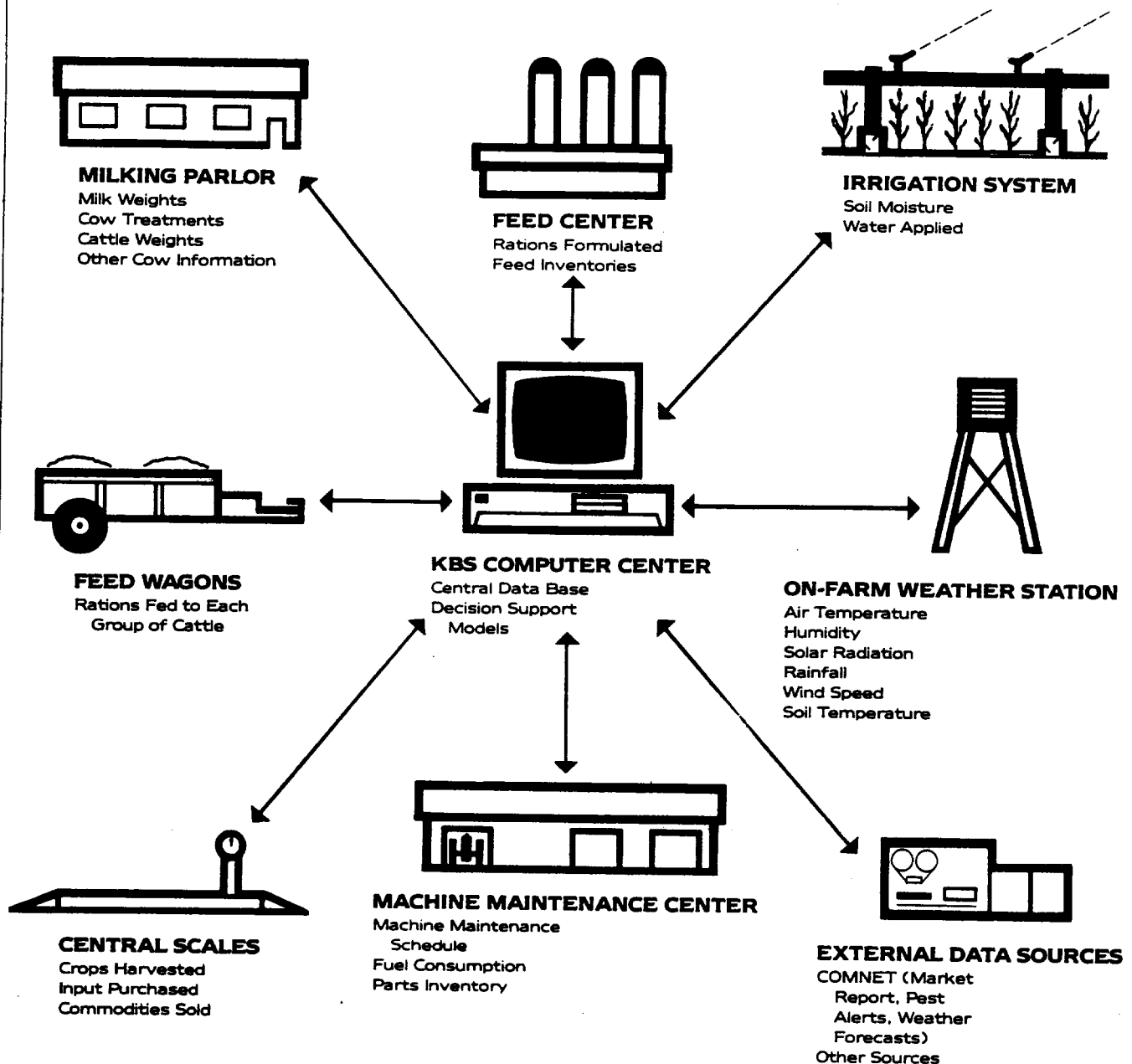
MILKING PARLOR
Milk Weights
Cow Treatments
Cattle Weights
Other Cow Information

FEED CENTER
Rations Formulated
Feed Inventories

IRRIGATION SYSTEM
Soil Moisture
Water Applied

FEED WAGONS
Rations Fed to Each
Group of Cattle

KBS COMPUTER CENTER
Central Data Base
Decision Support
    Models

ON-FARM WEATHER STATION
Air Temperature
Humidity
Solar Radiation
Rainfall
Wind Speed
Soil Temperature

CENTRAL SCALES
Crops Harvested
Input Purchased
Commodities Sold

MACHINE MAINTENANCE CENTER
Machine Maintenance
    Schedule
Fuel Consumption
Parts Inventory

EXTERNAL DATA SOURCES
COMNET (Market
    Report, Pest
    Alerts, Weather
    Forecasts)
Other Sources

Wink, L., FUTURES, pg. 22

An Extension Office Prototype

Monday, March 5, 1990   4:43pm

        Prototype of Application in a County Extension Office
          (Several Users, Some Common, Some Seperate Applications
        Alt+V to Desktop Calculator, Phone, Notes, Calendars, Etc.
                    Alt+Q to Cut and Paste

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D Agr. Applications   4 Access the EXTEND Network
E Agr. Agent Use   5 Address List Management
F Home Ec. Applic.   6
G Home Ec. Agent Use   7
H Youth Applications   8
I Rural Dev. Applic.   9 Backup Up The Hard Disk
J Rural Dev. Agents   0 Go To Farm Menu Prototype

———————————— Partial Page B ————————————

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D Agr. Applications   4

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