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Project 90

AN EXECUTIVE SUMMARY

The integrated information-communication system for Walt Disney World



Mr. Donn Tatum President Walt Disney Productions 500 So. Buena Vista Street Burbank, California 91503 RGA

nas G Paterson or, is Development Dear Mr. Tatum:

January 14, 1969

RCA is pleased to submit its proposal to serve as the principal contractor for the information-communication requirements of Walt Disney World. This will be done through the development of the integrated information handling system jointly defined through our mutual efforts.

The proposal is in three parts; an Executive Summary, a Technical Proposal and a budgetary Cost Proposal.

Our corporate interest in Walt Disney World has been conveyed to you personally by Chase Morsey. In the Executive Summary, a statement by Robert W. Sarnoff expresses what we all feel ... that we are proud to be associated with Walt Disney Productions in a project that holds so much promise for the future of human society.

We look forward to the early commencement of joint negotiations on the proposed system and to the development of an R&D program to explore the feasibility of creating an attraction around the System Communication Center.

Kindest regards,

T. G. Paterson

encs: Executive Summary

Technical Proposal Cost Proposal

Project 90 AN EXECUTIVE SUMMARY

The integrated information-communication system for Walt Disney World

RC/I Systems Development

DIRECTOR, THOMAS G. PATERSON/PROGRAM MANAGER, RICHARD H. BAKER/DECEMBER 1968

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An Acknowledgment

Project 90 has been an exciting task; exciting because of the sheer scale and vision of the Walt Disney World project; exciting because the joint team was challenged to address itself to defining an equally innovative approach to electronic information handling and communications requirements.

Long standing excellent relations beween Walt Disney Productions and RCA were further strengthened by the dedicated spirit of the joint team and the close working relationships developed over nine months of collaboration.

The guidance efforts of Tom Foster and Frank Stanek were of great help in setting the direction of Project 90 and keeping it on course. We are deeply appreciative of the support given by Arthur Andersen & Company who were very helpful on the analysis of the telephone system and computerized reservations requirements.

Project 90 was blessed by a totally cooperative attitude on the part of the RCA and Disney executive management structures. This attitude permeated down to all who participated. The result, over and above the accomplishment of Project 90's basic objectives, was the development of an RCA-Disney team to implement the proposed integrated information-communications system . . . a team that has built up a good deal of momentum and which is ready to

Project 90 Accomplishments

- 1. Validated integrated system concept.
- 2. Developed detailed requirements.
- Developed technical substructure required for specific
- 4. Defined a 1971 modularized package.
- 5. Established budgetary cost estimates.
- 6. Established implementation and project control plan.
- 7. Developed an RCA-Disney team to implement the integrated system.

The Project 90 Team

DISNEY

Walt Disney Productions

Tom Foster Bob Taylor Bob Swick Bob Cook Herb Taylor **Bob Foster**

WED Enterprises

Frank Stanek John Wise John Curry Stan Graves Harry Wolf

Disneyland

Dick Nunis Jim Pasilla Bob Jani Bob Matheison Ron Dominguez Mel Cecil Dean Narath Mike Vance Ted Crowell Bill Bealer Mike Bagnall Bob MacKinnon Jim Haught Bill Sullivan Pete Crimmings Bill Hoelscher Chuck Hannaford Chuck Corson Fred McGalliard Truman Woodworth

RCA Systems Development

Tom Paterson Dick Baker

RCA Service Company

Bob Peirce Dick Koos Bob Fleisher Arnold Kothe John Bakas George Smith

Information Systems Division

Ko Suzuki George Economides

Commercial Electronic Systems Division

George Tice Gene Fontaine Tom Meyer Chet Wallack Peter Baker

Aerospace Systems Division

Chuck Davis Earl Wyant Newton Teixeira Herb Silverman

ARTHUR ANDERSEN & CO.

Ron Lowe Don Quackenbush Steve Helpern

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Introduction

Project 90 had its genesis in an earlier conceptual joint RCA-Disney study of the information handling requirements of Walt Disney World. This program was initiated in March of 1968 and the final report was presented in June of that year. The report defined Walt Disney World goals and requirements and developed a conceptual approach to mating operational and administrative management functions into a single hybrid electronic system employing several medias such as digital computers, television, mobile communications and the telephone.

Disney management, in principle, approved of this unique approach and it was mutually agreed that RCA and Disney would collaborate to perform a system definition study. A 90 day effort—given the tag name Project 90 — was kicked off on 5 August 1968. Its purpose was to validate the hybrid systems approach, to configure the system, to develop costs and establish an implementation plan. The study emphasis, as with its predecessor, was to be on the 1971 requirements for the opening of Walt Disney World.

Arthur Andersen & Company was invited at RCA's suggestion to join the study team to give help in selected areas.

Before the completion of Project 90, Disney appointed "sign-off committees" to review the proposed electronic systems. This action helped to insure that the systems were truly responsive to Walt Disney World requirements.

Project 90 translated the general to the specific and culminated with a presentation to the Disney organization on November 19, 1968.

"With the technical know-how of American industry and the creative imagination of the Disney organization, I'm confident we can build a living showcase that more people will talk about and come to look at than any other area in the world."

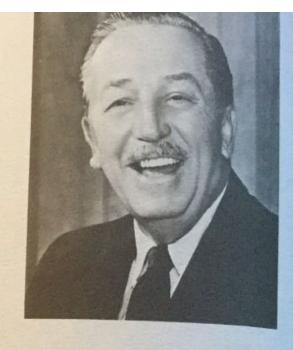
Walt Disney

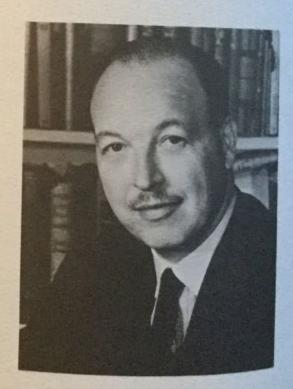
"Systems engineering, which combines many skills and disciplines in a unified problem-solving effort, has been applied to a great many technical challenges. It has contributed in a major way to the development of color TV, the exploration of space, and the planning and construction of large scale defense installations.

Today the systems approach is being turned to a new task—to meet increasingly urgent social and economic challenges, including problems of health, urban planning, natural resources and education. A new corporate unit, RCA Systems Development, was established to explore these needs and to focus the diverse capabilities of RCA in fulfilling them.

One of the first assignments of this new organization was to help develop the Integrated Information-Communication System for Walt Disney World. We of RCA are proud to be associated with Walt Disney Productions in a project that holds so much promise for the future of human society."

Robert W. Sarnoff





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Walt Disney World Goals

Project 90 addressed itself to four basic Walt Disney World goals:

- 1. Enhance guest satisfaction
- 2. Maximize facilities utilization
- 3. Minimize cost of operations
- 4. Provide safety commensurate with technology

These goals were related to specific requirements. The integrated system in turn, was tailored to meet these requirements with systems based upon standard product line equipments. Thus, an integrated system has been defined which has been customized to the unique requirements of Walt Disney World while satisfying needs in a highly cost-economic manner.

Conclusions

- 1. Walt Disney World goals are essential to successful operation and can be met.
- 2. An advanced electronic information-communication system is vital to the realization of these goals.
- The proposed system will result in more efficient and economical operations. At the same time, it will
 provide guests with an array of new services designed to enhance Disney's existing high standards
 of guest services.
- 4. The system will not just reduce costs but contribute in a positive way to profits.
- 5. The system will serve as a prototype of EPCOT's information-communication system requirements.
- 6. RCA, with the continued close collaboration of the Disney organization, can implement the proposed system to meet the October, 1971 opening.

Recommendations

RCA recommends that:

The Disney management team elect to implement the jointly conceptualized and defined integrated electronic system as opposed to individual hardware systems.

Reason:

The integrated system achieves good cost-economics through making multiple use of its components and distribution system. It offers a fully coordinated information-communication system.

Disney reach an early decision as to the degree to which the integrated system will be implemented for the 1971 opening. RCA stands ready to provide technical and administrative assistance in arriving at interim decisions leading to the final plan.

Reason:

An early decision is needed to assure that the system will be operational by October 1971.

A joint negotiating team be established to finalize the contractual relationships.

Reason:

To lay the proper foundation for continued equitable relationships between the two companies as the move into joint development of a complex and long term undertaking is now made.

Disney establish a Project Management office staffed by RCA and Disney personnel which will perform the necessary planning, execution and coordination functions to implement the proposed system.

Reasons:

To assure that the objectives of the project are met on schedule and within budget.

To guarantee complete compatibility between Disney designed facilities and the RCA designed system.



























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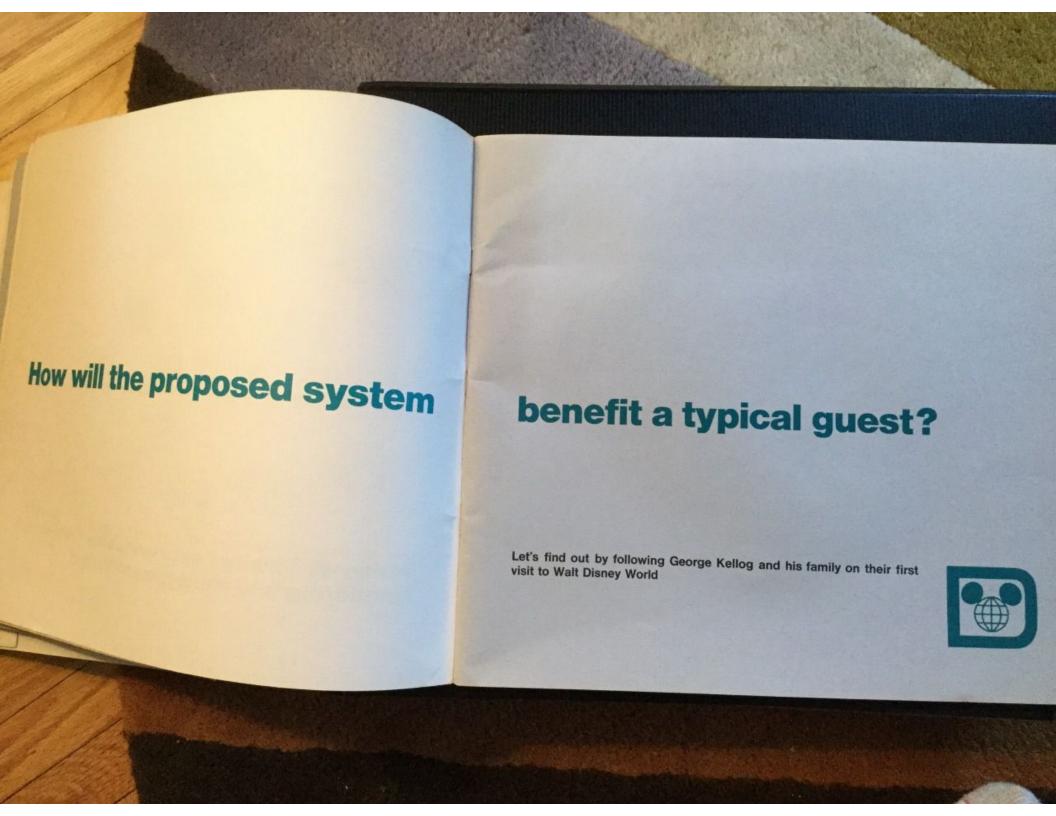
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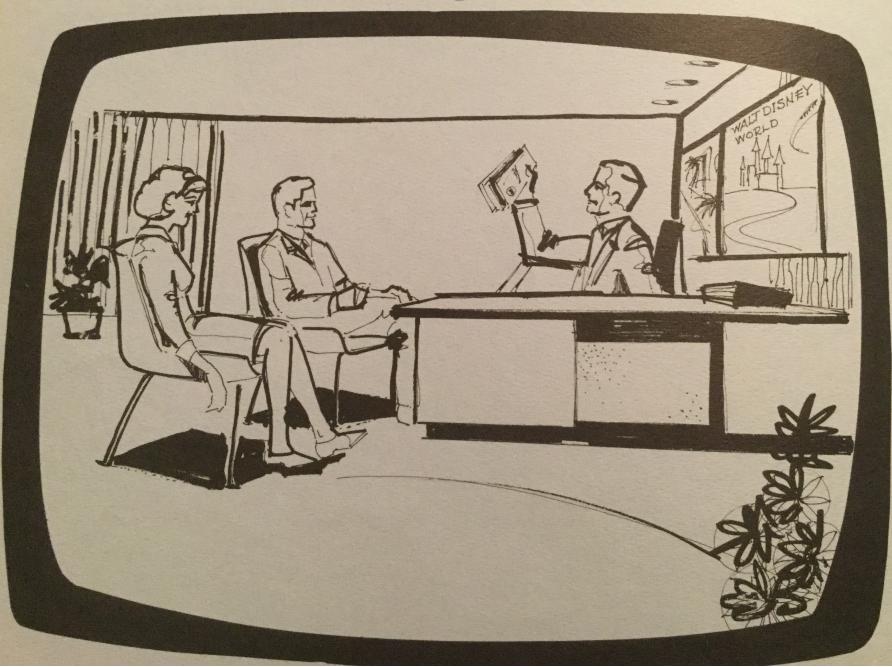
will contribute to enhanced guest satisfaction,
let us examine how it will support the many
management functions of Walt Disney World.

a new dimension in information-communication systems

Walter E. Disney Communications Oriented Monitoring and Management System



Guest Benefits



The Arrangements

George Kellog and his family from Wilmington, Delaware, are eagerly looking forward to their first visit to Walt Disney World. Having read the brochures on Walt Disney World, Mr. Kellog is aware of its popularity and knows he should make reservations well in advance.

At the travel agency, a direct call is placed to the Walt Disney World Reservation center. Although George is unaware of it, this is his first contact with WEDCOMM.

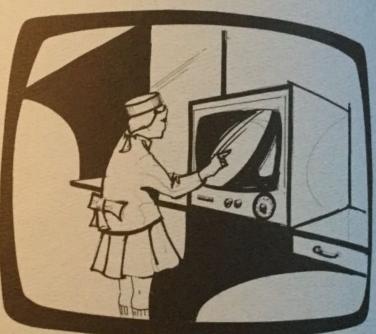
At the Reservation Center, the COMPUTER is interrogated by the clerk for room availability at the Contemporary Hotel, in a specified rate range for the stated dates. A few days later, George receives written confirmation that his family of five has confirmed reservations at the Contemporary Hotel.

WEDCOMM silently updates its files to protect these confirmed reservations. At the same time, pertinent information concerning the visit of George and his family is fed into the GUEST INFORMATION FILE which will build a GUEST PROFILE. This profile will help Walt Disney World to progressively increase its ability to serve the needs of the Kellog family and the thousands of others who will be guests over the years.

George is not aware of it, but his reservation is fed into the COMPUTER'S ATTENDANCE PREDICTION MODEL which triggers a whole series of actions designed to make the visit a truly memorable one . . . but we're getting ahead of our story.

Guest Benefits





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The Arrival

It's months later now . . . and George and his family are just arriving at Walt Disney World.

At the Entrance Center, an attendant welcomes George and his family and verifies their reservations. The attendant's reservation list has been prepared by the COMPUTER... so George has just had his second contact with WEDCOMM.

He is now given directions to the Contemporary Hotel, and in a few minutes the family is registered and comfortably situated in their room.

The desk clerk notifies the Reservation Center that the family has arrived and the COMPUTER'S files are immediately updated by a VIDEO DATA TERMINAL.

When the family enters the room, George's wife Julie is impressed with the room's neatness. She doesn't know it, but the ROOM STATUS/MAID LOCATOR SYSTEM assured that the room would be clean and unoccupied at the time of their arrival.

Young Debbie, age eleven, wastes no time in discovering the COLOR TELEVISION has more channels than she has ever seen on a TV.

"Look Dad" she exclaims, "this channel tells us about what's happening at the Park tonight. When can we go?"

The curiosity of nine year old Curtis leads him to the AM/FM RADIO.

"Turn that down," Debbie yells!

But Curtis objects, "I've got a special channel too . . . and it's playing the music from the Disney movie that we saw last week!"

Of course, the SPECIAL TV and RADIO PROGRAMMING are only part of WEDCOMM, but this isn't important to Curtis or Debbie . . . just the results are.

Quietly, WEDCOMM has been performing many other tasks aimed at taking extra good care of the family's needs. The facts about their stay were logged into the COMPUTER via the ATTENDANCE PREDICTION MODEL. As a consequence, the INVENTORY CONTROL SYSTEM and COMPUTERIZED PERSONNEL SCHEDULING SYSTEM have helped Disney Management make sure that adequate staff is on hand, that food supplies have been provided, and that the stores are well stocked with popular items of merchandise.

Meanwhile, Debbie finds that there are other SPECIAL CHANNELS on their TV. As she turns to the CHANNEL ALLOTTED TO SURVEILLANCE of the hotel's fenced-in play yard she calls out, "Look, Mom, there's the play yard we saw on the way in. If we go down there to play we'll be on TV!" Mother agrees, but she also appreciates the serious purpose of the special channel.

Guest Benefits









The Visit

George and his family are among the first to arrive at the Theme Park the next morning. Little George is quick to spot one of the TV SURVEILLANCE CAMERAS.

"What's that?" he asks his father.

George answers, "Son, let's ask the attendant standing right over there." The attendant explains that the object is a TV CAMERA that helps the parking area attendants make sure that guests' cars and property are safe during their visit to Walt Disney World.

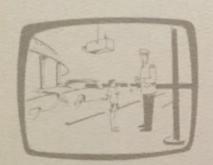
At the ticket counter, George, as a preferred guest, uses his Walt Disney World Credit Card to purchase the ticket books. This transaction will shortly be entered into WEDCOMM's COMPUTER and George will be automatically billed.

As the family passes through the entrance gate, the turnstile counting device enters their family into the COMPUTER'S COUNT OF TOTAL PARK ATTENDANCE. Unknown to George, the computer already senses that the guest count is rising at a faster rate than predicted. This updated information will be promptly displayed on a VIDEO DATA TERMINAL at the SYSTEM COMMUNICATION CENTER. There an operator will alert the operations supervisor so he can decide to bring in extra help in time to meet the need. The family's afternoon will thus be more enjoyable because of the warning given by WEDCOMM to management.

Debbie has been impatiently waiting to visit the Haunted Mansion. She had seen TV PREVIEWS of the attraction last night at the hotel room. So that is where the family heads first.

Inside the Haunted Mansion, DARK ATTRACTION TELEVISION MONITORING is silently adding another safety factor for George and his family.

Guest Benefits

















The Visit

As they leave the Haunted Mansion, an attendant overhears Debbie say to her father, "Gee, Dad the TV AD was really right . . . that was super!" Curtis adds, "Now let's go to Space Mountain!"

When the family arrives at Space Mountain, George's wife Julie remarks on the long line, "A lot of others had the same idea as we did!"

They have only been in line a short time, when Snow White and the Seven Dwarfs appear on the scene. At the SYSTEM COMMUNICATION CENTER a TV MONITOR had revealed a rather rapid buildup of the waiting line, and an operator notified the Area Supervisor of Tomorrowland. The Supervisor PHONED for live entertainment . . . and so "off to work" for Snow White and her friends.

Space Mountain turns out to be a fantastic experience. It might not have turned out that way, had it not been for the AUTOMATIC MONITORING SYSTEM which had detected a faulty pump the previous evening. Had this mechanism failed, the ride might have been down for several hours! But what really happened was... the AUTOMATIC MONITORING SYSTEM'S SENSOR told the COMPUTER it had a sick pump about to go down. The COMPUTER alerted the Maintenance Center. The Maintenance supervisor scheduled the needed repair for action during the normal nighttime maintenance shift. Of course... the reason the needed part was available... was that the COMPUTERIZED INVENTORY CONTROL SYSTEM helped to make sure that the right spares were in stock.

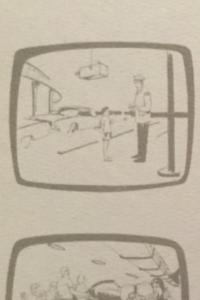
Now the children begin the familiar cry of "I'm hungry!" Soon the whole family has hot dogs which they decide to eat in a nearby rest area. There, as the family enjoys their snacks, they are advised through a TV MONITOR that special pricing is about to go into effect on the steamboat ride.

On the way to the steamboat, George calls attention to the Hall of Presidents exhibit which they are passing . . . and in the family troops.

They are awed by the dramatization and the human qualities of the figures. What helped to make it so? Of course, the outstanding design and superb showmanship . . . but working to keep the attraction at top quality were AUTOMATIC MONITORING of the show's control system, and AUTOMATIC TEST EQUIPMENT and TV MONITORING of the figures.

Months later the Hall of Presidents will be the most talked about attraction of their visit.

Guest Benefits

























The Visit

Late in the afternoon, when it is nearing time to return to the hotel, Debbie reminds her father of a three month old promise to buy a Mickey Mouse watch. Dad smiles inwardly, and thinks, "She didn't forget."

Debbie is quick to spot a store with Mickey Mouse watches on display, and soon she has one on her wrist. But, Dad doesn't get off so lightly. The well stocked store leads to several other purchases . . . something for everyone, including George himself, who finds a butane lighter he has wanted for some time.

The well stocked store is no accident. The buyer for the store has had assistance from WEDCOMM.

Merchandise sales trends have been analyzed by the COMPUTER and merged with other data from the ATTENDANCE PREDICTION MODEL to produce accurate ordering information well in advance of need for merchandise. As a matter of fact, computer assistance has helped the buyer to maintain a 97% in-stock batting average and a high turnover rate.

As they leave the Theme Park, George and Julie remark about the pleasantness and efficiency of the park personnel . . . for they added much to the day. George notes that everyone seems to know his job perfectly, even though Walt Disney World opened only recently. Both parents had heard of Walt Disney World's high quality personnel screening, testing and advanced training programs. On the "Wonderful World of Color," TV program they had seen various scenes of Walt Disney World in advance of the opening. One thing they saw was how CLOSED CIRCUIT TELEVISION was used to train thousands of employees in a remarkably short time period. The TRAINING WITH TV had provided thorough grounding in Disney standards of guest service, safety practices, and familiarization with the overall operation.

As they enter the hotel room little George yells, "Mom! the light is blinking!" And there on the COMMUNICATIONS CONSOLE, a red light winks.

A check with the desk reveals two calls have been registered for the Kellogs. Grandmother has called and reported that all is well at home and another message has been logged requesting the Kellogs contact the SYSTEM COMMUNICATION CENTER about a lost object.

Suddenly Julie realizes that she has lost her purse!

"George! I'm sure I had it when we bought your lighter."

George responds with a groan, "Great!, we were only at five places after that . . . but let me call the desk and see what I can do."

The desk clerk immediately contacts the SYSTEM COMMUNICATION CENTER, where a RADIO CALL is made to the area supervisor of Main Street and the security office in that locale.

Earlier, an observant clerk had set the purse aside at the post card stand and had notified the security office, which in turn had notified the SYSTEM COMMUNICATION CENTER. There a check made on hotel registration had developed into the call to the Kellogs at the hotel.

A messenger is dispatched to pick up the purse and take it to the Kellog's room at the hotel. In the meantime, a reassuring phone call is made to Julie . . . and thus ends the first wonderful day of the Kellog family visit to Walt Disney World . . . a visit enhanced by WEDCOMM, the 21st Century information-communications system of Walt Disney World.

Now that we have seen how WEDCOMM

will contribute to enhanced guest satisfaction,
let us examine how it will support the many
management functions of Walt Disney World.

Operations

Construction

Admissions and Cash Control

Food Purchasing Marketing

Engineering Warehousing

Merchandising

Lessee Relations

Public Relations

Maintenance

Publicity

Employment

Finance

Security Group Sales

Food Services

Entertainment

Advertising

Sound

Administration

Personnel and Training

Benefits for Operations

Enhance Guest Satisfaction

The Computer will support this objective through

- Attendance Prediction Model and Guest Statistics to provide the basis for accurate planning and provision of staffing and material support to meet guest needs.
- · Inventory Control to facilitate implementation of the plans.
- Reservation System to assure fast and accurate reservation services.
- · Information to guest and employee TV channels.
- Computerized Credit Card to provide a prestige service for convenient payments.

The Hotel/Motel Communications System supports this objective through

 Providing entertainment and convenience for the guests at the hotels. This is furnished by Closed Circuit Television, Commercial TV broadcasts and AM/FM music.

Closed Circuit Television supports this objective through

- Operational training, orientation, and motivation of operations personnel to help them perform at Walt Disney World standards.
- Presenting information of interest to guests, and to employees so that they can answer guests' questions.
- · Monitoring of shows, rides, and attractions for quality.

Automatic Monitoring and Control supports the objective through

Helping to provide maximum equipment availability so that guests can see more attractions.

Mobile Communications supports the objective through

 Providing a rapid and positive means of communications to advise management of conditions requiring decision and communicating decisions for action.

Minimize Cost of Operations

The Computer supports this objective through

- Attendance Prediction Model and Guest Statistics to assure that guest needs will be met with minimum staff.
- Inventory Control to assure that guest needs will be met with minimum inventories, and minimum food wastage.

Automatic Monitoring and Control and Automatic Test supports this objective through

Helping to assure maximum facilities utilization, and hence maximum revenue.

Closed Circuit Television supports this objective through

 Facilitating employee training, orientation and motivation with minimum requirement for training staff.

Provide Safety, Security, and Fire Protection

Automatic Monitoring and Control, and Automatic Test support this objective through

- · Helping to assure equipment reliability.
- Monitoring and reporting on inputs from Heat and Smoke Detectors.

Closed Circuit Television supports this objective through

 Monitoring dark rides, and selected areas to detect potentially hazardous conditions and unauthorized actions.

Mobile Communications supports this objective through

Providing at the System Communication Center a centrally controlled communications system that in conjunction with telephone and TV provides a total communications capability with the Security and Fire Departments. It can help prevent emergencies and deal with them effectively and promptly when they do occur.

Air and Water Pollution Control

Primary support for this objective will be provided by the Automatic Monitoring and Control System in conjunction with Disney specified sensors.

It is anticipated that the detailed requirements to meet this objective will be defined in connection with the design effort for the Automatic Monitoring and Control System.

Benefits for Finance

The implementation of the Disney IMPART computer system will provide a number of advantages. WEDCOMM, with its unique features designed in response to Disney defined objectives, brings some special benefits to the financial function. These include:

- An Inquiry and Response System which provides accurate and up-to-date data on land resources and utilities.
- An Inventory Control System which receives most of its inputs for spares control from the Automatic Monitoring and Control and Automatic Test Systems.
- Guest Statistics, which are dependent on the automatic guest count capability, and are essential to accurate guest attendance predictions and timely modifications. These data can be of value in preparation of financial forecasts.

Benefits for Marketing

Of all the ways to increase profits, and there are many, none is more effective than increasing profitable sales. WEDCOMM will help generate increased sales while improving the efficiency with which sales are generated. WEDCOMM will assist Walt Disney World's marketing people in the following ways:

- By helping enhance guest satisfaction. Increased return visits, and word of mouth advertising... will help build a solid and predictable base for future business.
- Computerized Guest Profiles, the Attendance Prediction Model, and Guest Attendance Statistics. These tools can be used in market analysis, advertising research, group sales promotion and related functions.
- A large and readily manipulable data base. The computer can accomplish analysis far beyond what one can do manually. Accurate computer prediction of available capacity can be used to target group sales promotions and can optimize the most profitable type of group sales through computer simulation.
- TV and Wideband. This system can provide onsite TV advertising and programming for sales promotion, assist in the training of Walt Disney World sales personnel, and provide an efficient sales training method for travel bureau seminars enhancing the impressions of travel agents gained as a guest.

Benefits for Personnel and Training

The challenge of selecting, providing orientation, and training the staff for Walt Disney World is of monumental proportions.

Training is the foundation of any smooth running operation involving people. Disneyland is an example of the results of an outstanding training program. To accomplish the same results for Walt Disney World will be more difficult because of:

- · Greater size and complexity of the operation
- · Requirement for rapid build up
- · Smaller labor market in Florida

Portable television in conjunction with Closed Circuit TV and a resources library are the basis for the application of the Television and Wideband System to training.

Training of Personnel people:

- Closed Circuit Television can be used to facilitate the training of interviewers to use correctly the carefully developed Disney interviewing techniques.
- It can also be used to monitor actual interviews, and provide a record of key employee interviews.

Training of employees in general:

"Employee to guest" and operational skills for new employees and refresher courses for experienced employees through:

- Special situations video recorded for presentation, saving the high cost or impracticality of actual demonstrations, e.g., emergency routines.
- · Videotapes of normal operating procedures.
- Orientation courses to provide new employees with a knowledge of the overall operation.
- Motivation courses to instill in new employees the philosophy of Walt Disney World.

The proposed system will provide Walt Disney World management with a strong assist in the accomplishment of the selection and training of 4,000 plus people by the opening date. It will help perform the task efficiently, rapidly and in an economic manner.

In following years there will be a continuing need to train new employees and provide refresher courses to old employees. The value of television in training should progressively increase as it benefits from operational experience and a growing resources library.

Benefits for Entertainment

Entertainment features; the live shows, roving musical and special groups, and parades play a very important role in achieving guest satisfaction. To assure consistently successful results the entertainment features must be maintained at top quality. WEDCOMM can assist in achieving this objective in the following ways:

- TV monitoring of live shows, parades, and musical and special groups. Monitoring can be from the best vantage point, and can be displayed at the most convenient locations for management review.
- Video tape recordings can be made to serve three important purposes —
- · Review at Walt Disney World.
- Review by Disney Executives and the Entertainment Director in California. This enables them to be fully aware of entertainment quality at Walt Disney World without the necessity for time consuming and costly trips between California and Florida.
- To provide guest entertainment when shown through the Hotel/ Motel closed circuit TV System.

Benefits for Engineering

The Walt Disney World rides, shows, and attractions incorporate a high degree of sophistication of design in order to achieve the desired artistic, and entertainment effects. Associated with this sophistication is a level of complexity that creates the requirement for assistance to Engineering in connection with analyzing equipment performance and developing design improvements. WEDCOMM can provide direct assistance to Engineering in accomplishing these tasks. Here is how it will help:

- Automatic Monitoring and Control provides equipment performance data, and failure data.
- · Automatic Test provides failure data.
- TV Monitoring provides performance information.
- · The Computer furnishes statistical analyses from the failure data.

These analyses together with performance information provide an essential part of the basis for engineering decisions.

These decisions relate not only to design improvements of existing equipment, but also to decisions on equipment to be designed.

This information also provides a basis for engineering recommendations on maintenance procedures, and stocking of spare parts.

Benefits for Construction

The construction program will have been underway for an extended period ahead of the implementation of WEDCOMM. Provision will be made for an orderly phase-over of California based computer activities and transition from manual to computer.

WEDCOMM benefits for the construction program will be as follows:

- On site capability for computerized construction scheduling and schedule control.
- · On site capability for computerized cost control.
- Centralized communication system with its focal point in the System Communication Center. An interim System Communication Center is proposed to provide a centralized communication capability to support the construction program prior to completion of the permanent facility.
- Centralized location for display and review of construction status information. In this case too, it is proposed that an initial capability be provided in the interim System Communication Center.

Benefits for Maintenance

The Maintenance Operation for Walt Disney World, as is the case for Disneyland, will carry the critical responsibility of keeping rides, shows and attractions operating at top quality at minimum cost. Here are some of the more important ways in which WEDCOMM will assist Maintenance to meet its requirements:

Minimize Unplanned Downtime

Automatic Monitoring and Control supports this objective through:

- · Detecting marginal operation.
- · Earlier detection of failures.
- · Prevention of dependent failures.

Automatic Test supports this objective through:

- · Providing faster turn around of equipment being repaired.
- · Assuring reliability of repair actions.

The Computer supports this objective through:

- · Preventive maintenance scheduling.
- · Inventory control of spares.

Closed Circuit Television supports this objective through:

Facilitating follow-up and updating training of maintenance personnel.

Assure Quality of Rides, Shows and Attractions

Closed circuit television supports this objective through:

· Disclosing quality problems through TV monitoring.

Automatic Monitoring and Control contributes to this objective by:

· Detecting failures or marginal conditions that could affect quality.

Minimize Cost of Operation

Automatic Monitoring and Control supports this objective through:

- Detecting failures earlier, thereby triggering early corrective action and preventing dependent failures.
- Detecting marginal operation and indicating the need for preventive maintenance action before actual failure occurs.
- Identifying location of failures thus making it possible to effect repairs at lower cost.

Automatic Test supports this objective through:

- · Reducing trouble shooting time, and thereby reducing cost.
- Increasing accuracy of trouble shooting making it possible to take corrective action with minimum effort.
- Making it possible to use lower skill levels.
- · Making it possible to confirm that repairs are correctly made.
- · Reducing paperwork.

The Computer supports this objective through:

- Preventive maintenance scheduling leading to more efficient utilization of maintenance personnel.
- Inventory Control assuring that with minimum inventory the right spares are available to effect repairs at minimum cost.

Closed Circuit TV supports this objective through:

 Assuring that maintenance personnel have updated training to enable them to accomplish maintenance action most effectively.

The Mobile Communications System:

 Provides for each of the above objectives a rapid and positive means of communication.

WEDCOMM will have an operational nerve center where human abilities are enhanced through electronics...

The System Communication Center

System Communication Center

Concept:

The System Communication Center will be the operational nerve center for the entire information-communication system, where information vital to operational management is received and transmitted. The concept of this center is in keeping with the Disney philosophy of operation which vests the decision making with its managers who spend most of their time on the scene of activity, and assigns machines to a support role.

Mobile communications, telephone, television and wideband services, automatic monitoring, and the computer systems provide flexible information handling capability to assure that:

- · Management is alerted to the need for decisions.
- Management is furnished with accurate and timely information on which to base decisions.
- Desired information can be transmitted quickly to all important points.

Applications:

The System Communication Center will provide the centralized information access and information transmission capabilities to assist management in a major sense in accomplishing:

- · Emergency control.
- · Equipment malfunction surveillance.
- · Maintenance dispatch.
- · Sensitive area surveillance.
- · Security incident control.
- · Guest flow.
- · Transport dispatch.
- · Special event scheduling and control.
- · Electronic Bulletin Board updating.
- · Attraction rescheduling.
- · Special promotions.
- · Attendance reporting.
- · Labor rescheduling.
- · Food service rescheduling.
- · Operational status surveillance.
- · Construction status surveillance.

Growth Potential:

Open-ended system design permits updating as the state of the art advances, and expansion, to accommodate Walt Disney World's growth needs. The System Communication Center will always be a modern, efficient facility . . . which it must be as the operational nerve center of Walt Disney World.

As Walt Disney World expands and the industrial park, the jet airport, EPCOT and other elements of Walt Disney World are developed, there may well be a requirement for additional communication centers. Linked to the basic System Communication Center, these centers will help to maintain centralized, coordinated control of such functions as Security, Fire Protection and Traffic Control.

Special Considerations:

An interim System Communication Center is proposed to serve the needs of Walt Disney World prior to the availability of the permanent center.

The need for the interim center evolves from the extensive communication requirements associated with the construction program.

It is proposed that this interim center be housed in two $20' \times 50'$ trailers, joined together to form a single structure.

As proposed by Disney management, the concept for the System Communication Center could be enlarged upon to make it an attraction that would be the focal point for the Tomorrowland in Florida.

Key: 1, w 5, recept

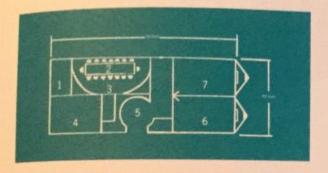
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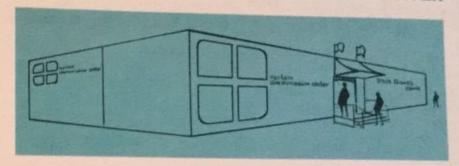


Key: 1. er 6. master 11. closet conference boards

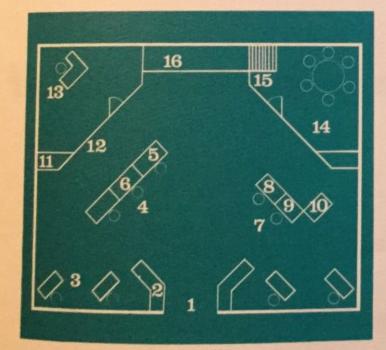
INTERIM CENTER



Key: 1, work area; 2, status room; 3, Disney Lands; 4, fire; 5. reception; 6. security; 7. communication



PERMANENT CENTER Master console with slave units for mobile communications

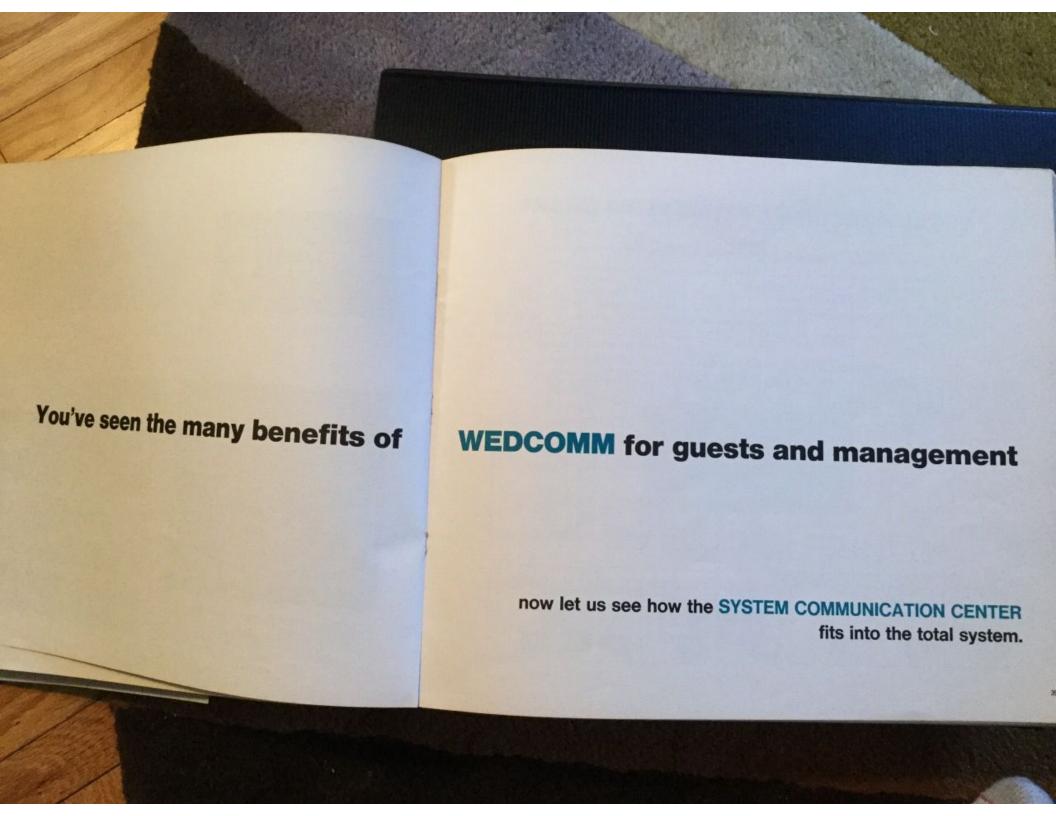


Key: 1. enter; 2. storage; 3. think; 4. mobile communications; 5. slave; 6. master console; 7. monitoring area; 8. VDT; 9. TV; 10. teletype; 11. closet; 12. statistical status/wall; 13. security area; 14. planning conference room; 15. construction status boards; 16. operational status boards

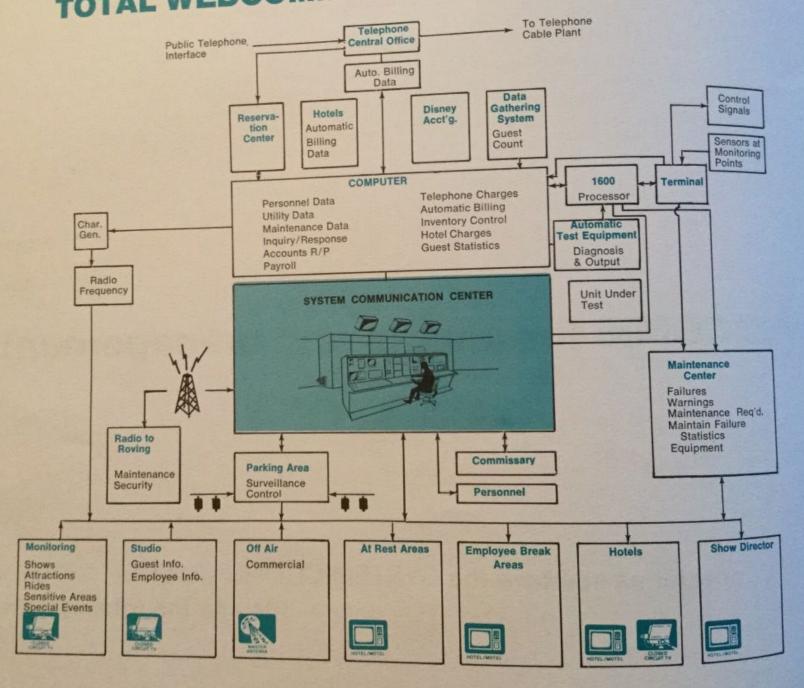


Color-coded construction boards on pull out overhead track





TOTAL WEDCOMM SYSTEM FLOW CHART



The heart of the system is the System Communication Center. Here is where the man-machine interface takes place, by means of which the appropriate management personnel are provided with requirements for decision and information to assist them in making decisions. All elements of WEDCOMM are connected to this Center.

WEDCOMM has been referred to as an integrated system. It is integrated in two important ways:

- 1. Walt Disney World managers, in common, share a variety of electronic tools to assist them in the performance of their tasks. For example, at the System Communication Center, telephone, teletype, video data terminals, TV monitors and mobile communications are used.
- 2. The common distribution system (cable, radio and telephone) also serves a wide variety of purposes, servicing both guest and management needs.

The system elements are:

ELECTRONIC TOOLS AND OPERATIONAL FUNCTIONS



PREVENTIVE MAINTENANCE



CREDIT CARD



RESERVATIONS



ATTENDANCE PREDICTIONS



COMPUTERIZED GUEST INFORMATION



COMPUTER INVENTORY CONTROL AND PERSONNEL SCHEDULING STATISTICS







COMMUNICATIONS



AM/FM RADIO



TELEPHONE





COMMERCIAL TV



ELECTRONIC BULLETIN BOARDS





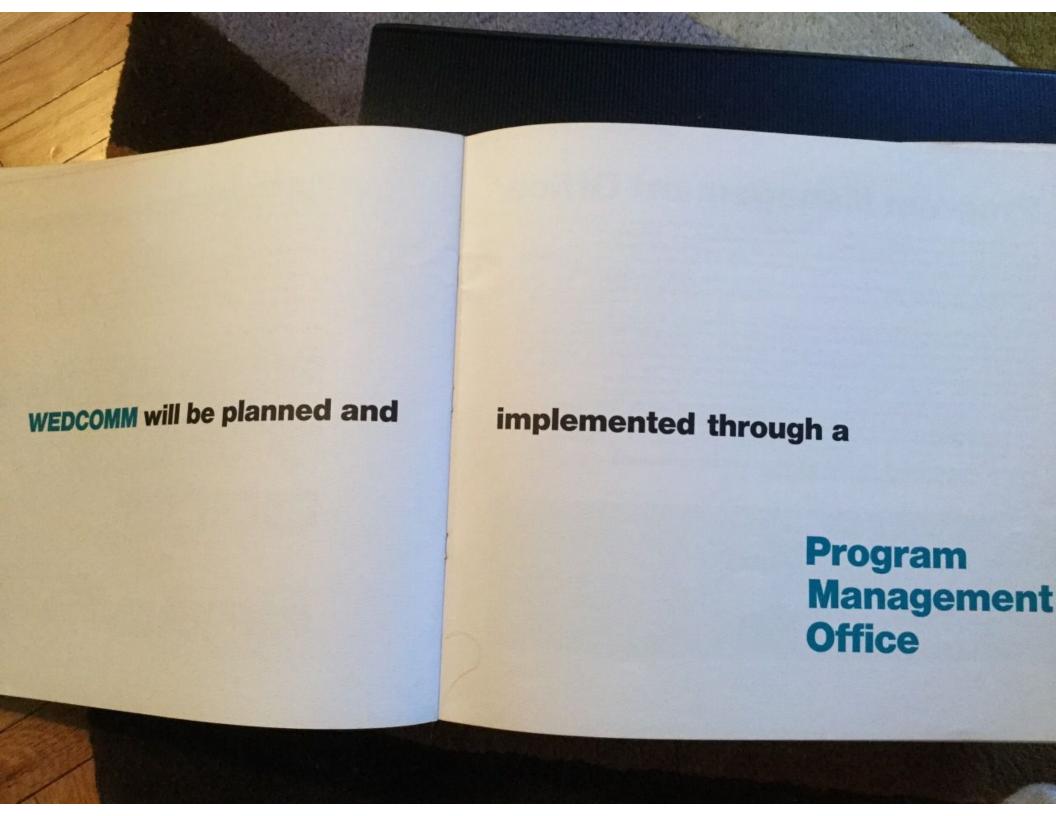
DISTRIBUTION MEANS







41



Program Management Office

Complete responsibility for the planning, execution, and coordination of all phases of large and complex programs in RCA is typically assigned to a single individual, the Program Manager. He is the authorized agent of general management to provide program direction to all participants in the program, to exercise full program coordination, and to assume liaison and interface responsibility with the customer.

A similar approach is regarded as essential to the successful implementation of WEDCOMM and, therefore, RCA proposes to staff and manage a Program Management Office to be supported by Walt Disney World personnel.

WEDCOMM is an integral part of Walt Disney World and will be complex in terms of technical, schedule and organizational relationships. Several divisions of RCA and many operations of Walt Disney World and the parent Disney organization will be involved. Further, as with Walt Disney World, WEDCOMM will perpetually be in the process of becoming. So change and system growth will be the normal situation, and with constant change comes increased coordination problems. The Program Management Office . . . in short hand, the PMO . . . will provide Walt Disney World management with one point of contact, the Program Manager, who will be well informed on every aspect of WEDCOMM's status. Progressive interconnection of WEDCOMM's elements to accommodate new functions will be planned and implemented through the PMO.

Progressive interconnection will be based upon making multi-use of WEDCOMM components and Distribution System. Resulting hardware and software savings will, of course, help offset the cost of maintaining the PMO.

The Technical Proposal describes the PMO function in detail; for this report the three basic phases of Planning, Execution and Coordination are graphically depicted below.

PLANNING EXECUTION COORDINATION TASK ELEMENT TECH STATUS WALT DISNEY STATEMENT TASK PROGRAM ASSIGNMENT CONTROL PROJECT WORLD ELEMENT OF PLAN MGMT STATEMENT WORK RESPON-WORK OF REVIEW SYSTEM FOR TASK SCHEDULE SIBILITY PROCEEDS WORK **PROGRESS OPERATIONAL** ANALYSIS ELEMENT EACH FOR FOR IN EACH AND CONTROL IMPLEMENTATION DIRECTION EACH EACH TASK CONTRACT TASK TASK TASK ASSESSMENT ELEMENT CHANGE TASK ELEMENT CONTROL

The organizational strand the functions per particular phase of Wing as it moves from do to implementation at 1969, the proposed strong the chart appearing and television and wicknessidence representations systems will have apply of a designated persondivision.

PERT SCHEDULI LEADER

Walt Disney World in Facility Engineering Technical Interface System Integration T PERT Schedules

ice

ATIONAL

IENTATION

The organizational structure and size of the PMO and the functions performed will change with the WEDCOMM particular phase of WEDCOMM's evolution, shift-WDW PROGRAM ing as it moves from design into development, then MANAGEMENT MANAGER to implementation and operational cutover. For 1969, the proposed structure of the PMO is shown on the chart appearing on this page. Computer and television and wideband services will have in residence representation. However, all other subsystems will have appropriate functional support SECRETARY of a designated person in the concerned operating division. SYSTEMS PERT TECHNICAL TV AND COMPUTER WDW INTEGRATION **ADMINISTRATOR** SCHEDULING WIDEBAND SYSTEMS PERSONNEL LEADER LEADER SYSTEMS LEADER LEADER

PMO FUNCTIONS

Walt Disney World Interface
Facility Engineering Liaison
Technical Interface Coordination
System Integration Testing Coordination
PERT Schedules

Configuration Control (Engineering Change Board)

Cable Subsystem (Interface/Integration Specifications)

Documentation (Interface and System Documentation and Standards)

Spare Parts Requirements Consolidation Quality Control

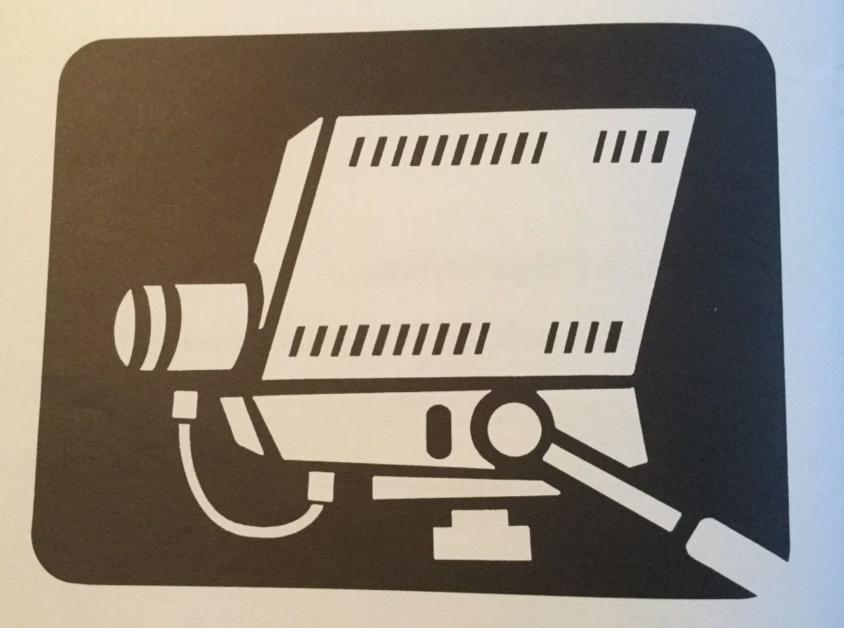
Reliability

Warehousing (Inspection, Requirements Consolidation, Surveillance)

In reality, WEDCOMM is a system of Systems, a network of Networks...

linking proven product line components through RCA advanced systems engineering techniques to create for Walt Disney World the first 21st Century information-communication system.

Now let us look at the individual Systems which comprise WEDCOMM



Television & Wideband Systems

Concept:

The highly personal orientation of Disney operations creates many requirements that can be most efficiently served through the personal communications medium of television.

The system will support the following functions:

EMPLOYEE DEVELOPMENT
OPERATIONAL MONITORING
GUEST INFORMATION — ENTERTAINMENT
PROMOTION

Applications:

EMPLOYEE DEVELOPMENT — The system supports this function by assisting management in:

Training interviewers.

Providing orientation for new employees, and refresher courses for experienced employees.

Providing information to employees to help them better serve quest needs.

Providing motivation to continuously encourage employees to put into practice the knowledge of operations and Walt Disney philosophy which they have been taught.

OPERATIONAL MONITORING — The system, through operational monitoring, provides management with information on which to base decisions and actions to:

Assure safety for guests and employees.

Accomplish security control.

Assure the quality of rides, shows and attractions.

GUEST INFORMATION — ENTERTAINMENT — These functions are achieved through:

Commercial TV in guest rooms.

Walt Disney World Channels in guest rooms for guest information and promotion of Walt Disney World activities.

Television Bulletin Board at selected points in Theme Park.

PROMOTION — The system assists in accomplishing this function by providing for commercial broadcast origination at key locations in Walt Disney World.

Special Considerations:

The system will serve the requirements best and in the most economical manner if facilities and attractions are designed initially to accommodate the equipment that comprise the system.

The cable system for the television system should be a part of a master cable system designed to serve all Walt Disney World communication transmission requirements.

Switching capability is provided to permit viewing a number of areas from a single monitoring location,

The cable system for Walt Disney World will be the life line for the operations. It will serve the:

- · Digital Animation Control System.
- · Television System (portable and fixed facilities including studio).
- · Automatic Monitoring and Control System.
- · Automatic Test System.
- · Computer System.
- Hotel/Motel Communication System.

Should Walt Disney World management decide in favor of a single integrated cable plant then the telephone cable plant would, of course, be included.

A cable system engineering contract has been proposed. Because of the broad technical ramifications of the cable system and the impact on early construction activities, it is recommended that a decision be made in the near future to authorize this effort.

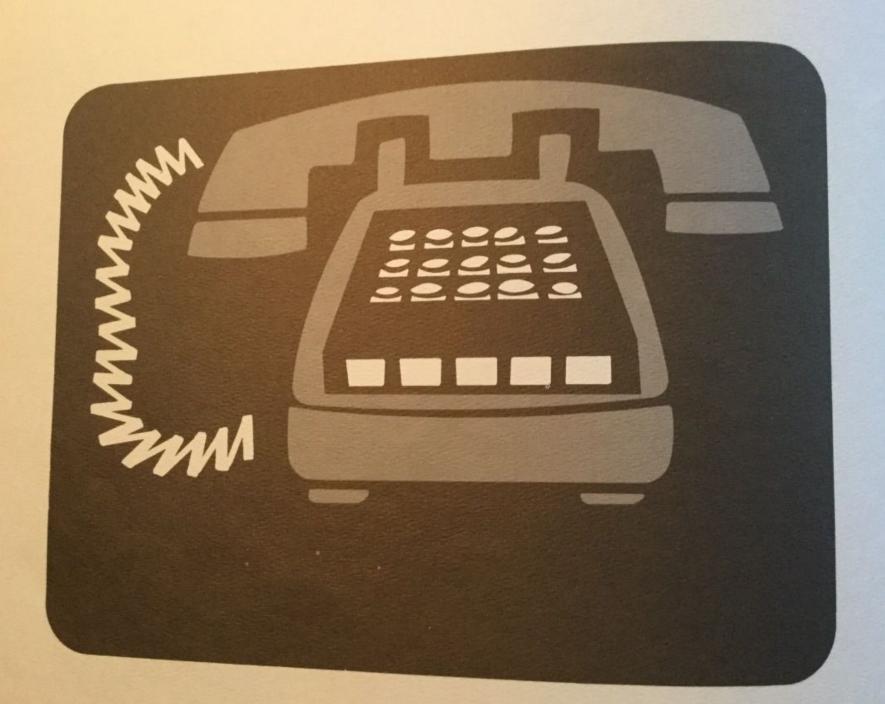
Another important consideration is the grounding study proposal included in the cable system engineering proposal. This too, has a significant bearing on early construction activities and requires early action. The peculiar grounding characteristics of the Florida soil lend special significance to this subject.

Growth Potential:

With regard to the geographic area of Walt Disney World included in the 1971 opening, the growth potential for the system is provided for by the planned cable system which covers all of this area. The cable system is laid out to service future construction and facilities.

The growth potential of the system is inherent in the following aspects of system design:

- Additional monitoring and surveillance can be achieved by adding cameras and television monitors at new locations.
- Studio facilities can be increased to permit production of a wider range of material.
- c. The cable system is planned to accommodate television programs for network distribution originated at various locations such as the recreation complex, the hotels, and Main Street.
- d. Expanded material for entertainment, job training, orientation and motivation can be added to the resources library.



Telephone System

Background;

The telephone system provides linkages vital to WEDCOMM. In order The telephone this function with required effectiveness, it is essential that to fulfill this function with required effectiveness, it is essential that to fulfill be to exercise complete control wall Disney World management be able to exercise complete control over the operational telephone services.

It was the requirement for control in an environment of continuous expansion to accommodate growth that led to the conclusion that a expansion that a privately owned telephone system for internal communications should be considered. In large enterprises such as Walt Disney World, a be considered by world, a significant percentage of telephone usage—over 50%—is for internal communications only.

At Disney's request, the Project 90 work statement included service to the hotels, motels and residential community. Thus the concept of an INTERNAL privately owned system shifted to a PUBLIC system that would be privately owned.

Considerable effort was devoted in collaboration with Arthur Andersen. & Company during the project in developing cost estimates to compare a privately owned telephone system with the Florida Telephone Company. In the final analysis, it was recognized that the cost to Walt Disney World for telephone service would be the same for a privately owned system or a publicly owned (Florida Telephone Company) system. The rates for privately owned telephone companies are established by the Public Utilities Commission if telephone service is offered to the public. It was not within the capability of the Project 90 team (nor would it have been appropriate for RCA) to have made a comparison of the net financial impact on Walt Disney Productions of a public system that would be owned in total or in part by Disney.

The Technical Proposal contains a cost summary for telephone service for both public and privately owned systems. These identical costs (to Walt Disney World) for the estimated quantities and types of services

Total one time installation cost \$39,150 Monthly operating cost \$80,250

A comparison of net annual income per phone for two different size groups of telephone companies with the Florida Telephone Company was made. Four companies with annual revenue of \$500,000 a year and four companies with annual revenue of \$1,000,000 a year were compared with the Florida Telephone Company which has a revenue of about \$12,000,000 a year.

The results were:

Net Income/Telephone

Average of Four Companies with \$500,000 Annual

Annual Revenue \$14

It is significant that the net income/telephone increases with the size of the telephone company. It is believed that net income/telephone for a Disney owned telephone company would initially fall between the \$12 and \$14 figures. However, in the EPCOT era, the net income/telephone could be closer to that realized by Florida Telephone. In that time period, the increased size of the residential community plus new applications will expand net income/telephone as will large data communications traffic from the industrial Park.

Conclusions:

A private internal system would enable Walt Disney World to achieve the benefits of flexibility and control for all operational applications for the telephone it may for the telephone system, in the light of recent court decisions, it may now be possible to interface such a system with a common carrier and thus combine the special benefits of a private system with the broad service of a public system.

It is urged the Disney decision on ownership be made as soon as possible. Implementation of a telephone system to meet the schedules already established requires the systems engineering to start immediately Experience indicates that with regard to maintenance, a single central office system requires less maintenance than the equipment to service the same number of lines but broken up into separate locations. There are certain items of equipment that must be duplicated at each location and hence the amount of equipment is greater.

Recommendations:

RCA recommends that the following actions be taken:

- 1. Early authorization of the proposed Telephone System Englneering contract. This will permit accomplishing system design early enough to protect the October 1971 opening from delay
- 2. Consider implementing a privately owned internal system for all services contained within Walt Disney World and involving Disney personnel only. With this arrangement, all calls to locations outside of the area serviced by the internal telephone system would be made by interface to the common carrier. The details of providing the interface would be resolved, in conjunction with Walt Disney World personnel, as one of the system
- 3. Consider having the cable plant for the total telephone system for Walt Disney World a facility owned and controlled by Walt Disney World. The cable plant requirements of the common carrier could then be satisfied by leasing from Walt Disney World the required number of cable pairs.
- 4. Consider selecting the large single central office concept in preference to the small central office/PABX configuration for the common carrier service.

It is the considered opinion of RCA that adopting these recommendations will contribute to providing

- complete management control over the operational telephone
- · economy of installation
- · economy of operation
- · flexibility for expansion
- · economy of expansion

The recommended approach will facilitate expansion of WEDCOMM into the industrial Park, Entrance Complex, EPCOT and the Jet Port.

RCA Proposal:

RCA is not in the telephone equipment business and it would be in the best interest of Disney if the telephone equipment were procured or leased directly from the equipment suppliers.

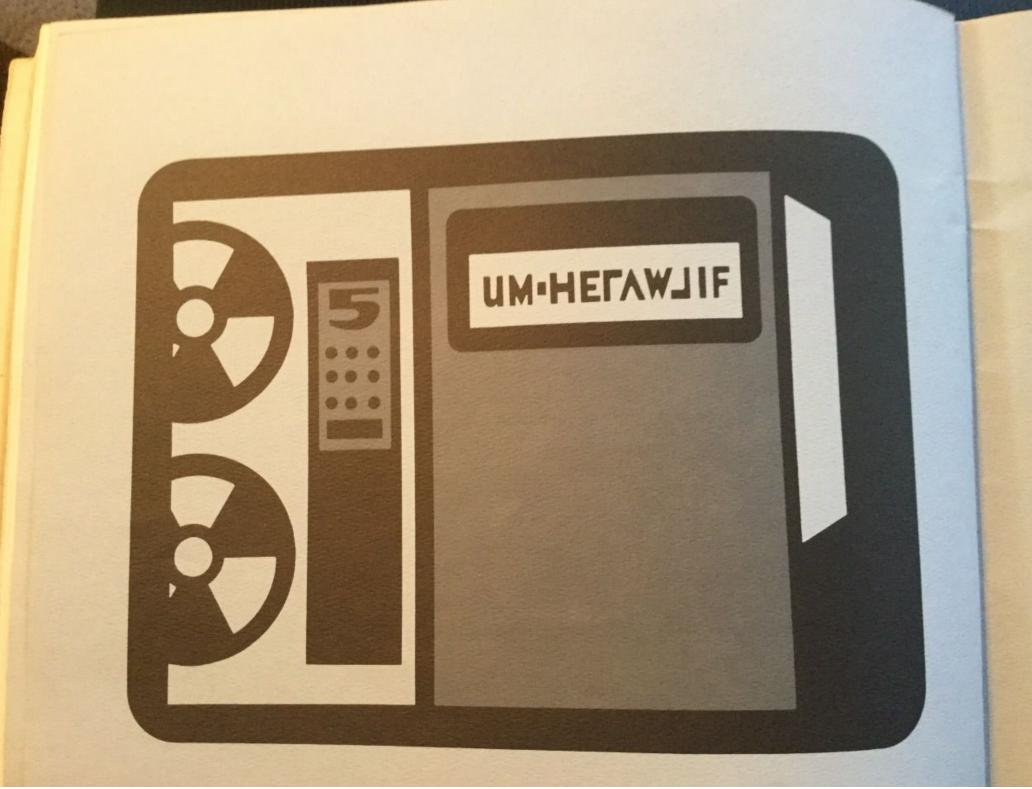
However, RCA has extensive experience in designing, operating and maintaining telephone systems and RCA proposes to furnish system. engineering services. The services would include:

- 1. System configuration
- 2. Design criteria
- 3. Design monitoring
- 4. Building design requirements
- 5. Installation and acceptance

This "beginning to end" approach offers a complete telephone systems engineering package to meet these objectives:

- 1. To assure that requirements are properly identified and defined.
- 2. To assure that the best systems approach is specified consistent with requirements, economic considerations and the need for growth potential.
- 3. To assure that the design, manufacture and installation of the system complies with specifications.

The telephone system interfaces with WEDCOMM at many points and in a complex manner. Because of this RCA looks forward to the opportunity of implementing the system engineering proposal.



Computer System

Concept:

The Disney computerized management information system called The Distery is an integral element of WEDCOMM. IMPART is administrafively and financially oriented. In WEDCOMM, operational applications are added. WEDCOMM's computer operations include vital operating are added. Theme Park, Hotel/Motel Complex, Residential Community and utilities.

The coupling of administrative/financial functions with operational functions is unique in today's state of the art. But, it is a natural marriage in WEDCOMM which is designed to help achieve optimum efficiency and effectiveness in the total operations of Walt Disney World.

This combination of applications into a single management information system will powerfully support the mainstream profit generating activities of Walt Disney World and Walt Disney Productions in total. The planned marriage is an imaginative application of data processing to the operation of a major enterprise.

WEDCOMM's computer system will not only provide a new dimension. in operations control but also provide Walt Disney World management with time-current information on operations that is needed for planning and future decisions.

This computer "utility" with its foreground, real time communications, vast random access storage capacity and remote inquiry/output display devices and its background processing capability is designed for flexible, modular expansion. Thus it will grow with Walt Disney World's needs in the appropriate scope, size and extent of automation

Applications:

The applications programmed for IMPART and the WEDCOMM additions are shown below. They are scheduled for implementation in accordance with the priority of requirements and planned phasing of Walt Disney World.

Payroll and personnel Operational accounting inventory control Accounts payable Revenue accounting Preventive maintenance Fixed assets General ledger



Guest statistics Guest attendance forecast Personnel scheduling Food service requirements Reservations Information for quests Information for employees Utilities Land resources Automatic monitoring and control Automatic test Credit card

Growth Potential:

Four phases of evolutionary development are envisioned for the WEDCOMM computer system.

PHASE I - Pre-opening

For this phase it is proposed that installation of a Spectra 70/35 and a 70/45 be made. These two computers operating in a real time and "batch" processing mode can satisfy pre-opening requirements in an economical manner. This approach assumes that development of a computer "utility" will not take place until Phase II's equipment con-

PHASE II - Post-opening

After the opening of Walt Disney World and as the first peak season is approached, it will be necessary to have expanded communications. real time processing capability to meet the operational requirements of hotel/motel reservations automatic monitoring and control, and expanded throughput capability to cope with the total data processing

To satisfy this expanded requirement, it is planned to replace the 70/35 processor with a 70/45 processor with a maximum size memory plus adding random access storage capacity with disk storage units.

The precise date for this transition will be firmed up later, but it is estimated that it will be in December 1971.

PHASE III - Industrial Park

This phase calls for adding time-sharing capability, (sharing of the computer's productive capacity between several users), to meet the requirements of tenants of the Industrial Park. The time-sharing center will augment the existing computer utility, adding to it a massive, dynamically allocated storage capability.

PHASE IV - EPCOT

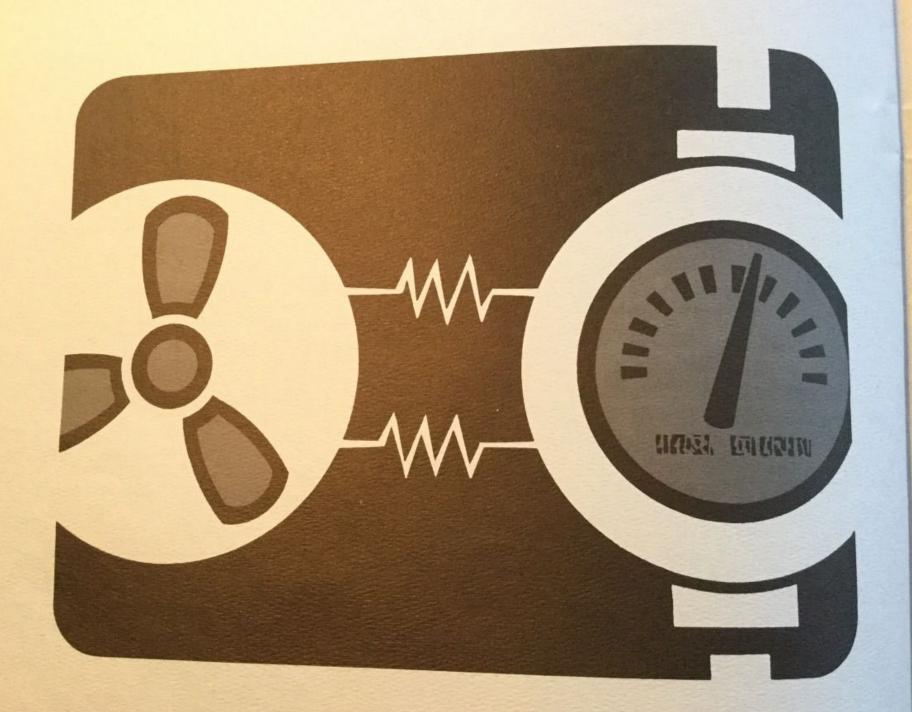
EPCOT will provide a revolutionary opportunity for full exploitation of the computer's ability to help make life convenient, pleasant, safe, and relatively free from many of today's routine tasks which fall intothe category of drudgery.

Computer applications for EPCOT are discussed in a later section of this management summary which deals with the evolution of WED-COMM into EPCOT's requirements.

Inasmuch as EPCOT is ten years or more away and the rate of new developments is increasing, it is likely that the programs actually implemented for EPCOT may differ materially from what is anticipated today. It is essential that future planning be periodically updated to assure that it properly recognizes new trends and new developments.

Special Considerations:

The profit generating characteristics of the WEDCOMM computer system (which stem from the addition of operational functions) provides a far greater economic justification base than for a management system which has its primary orientation to the accounting and financial functions.



Automatic Monitoring and Control System

Concept:

The Automatic Monitoring and Control System for Walt Disney World may be viewed as a basic element of the communications system. It must acquire, select and organize data from monitoring points and direct alerting and control signals to the System Communication Center, the Maintenance Center and to selected operating mechanisms.

The prime objectives of automatic monitoring and control are to employ economically effective means to:

- 1. Avoid actual failure by detecting incipient failure.
- Avoid compounded or dependent failures by detecting the need for repair action early.
- Provide data for efficient computerized scheduling of preventive maintenance.
- Provide control signals to adjust mechanisms where the need is indicated.
- 5. Furnish spare parts usage data to the Inventory Control System.
- 6. Furnish failure data and analysis for engineering decisions.

Applications:

Monitoring is accomplished through sensors installed in selected locations in the utility systems, rides, attractions, and the show control system.

The selection of points to be monitored has been accomplished as a joint effort of personnel from Disneyland and Walt Disney World activities. From this information the layout of the total system has been made.

Guidance and direction from the responsible Disney "sign off" committee has provided the basis for the system plan, assuring that it is compatible with Walt Disney World requirements. It also has provided the basis for the general phasing plan.

Technical coordination in connection with monitoring of the show control system has insured that there will be compatibility between the Digital Animation Control System (DACS) and the Automatic Monitoring and Control System.

Growth Potential:

The system proposed is directed toward initial installation for the 1971 opening. As Walt Disney World grows, monitoring and control will be refined, changed and expanded. As the 1971 package is implemented, the requirements for EPCOT will be studied. These in turn, form the foundation for the evolution of automatic monitoring and control for EPCOT. The ability to respond effectively to changes and growth opportunities is essential to the Walt Disney World environment. This capability is inherent in the Automatic Monitoring and Control System both from a hardware and software standpoint. This

system is designed to be expanded in modular increments, both in stations.

Monitoring and control points can be added by the simple addition of coverage to other areas served by the cable plant.

The software is also modular in design. This flexibility permits Disney personnel to adapt the Unit Under Test (UUT) programs when the device being monitored is itself modified. These programs will allow increased or decreased.

The executive systems of the RCA 1600 and Spectra 70/45 are sufficiently general to permit additions of terminals and satellite computers are identical so that the addition of 1600 computers does not require the development of new software.

The monitoring and control technique will not only readily accommodate additional stationary locations but also the monitoring and control of vehicular systems.

Special Considerations:

The trade-off in automatic monitoring and control is between various categories of failure-associated cost such as:

Failure prevention Failure detection Failure correction Cost of incurred failures

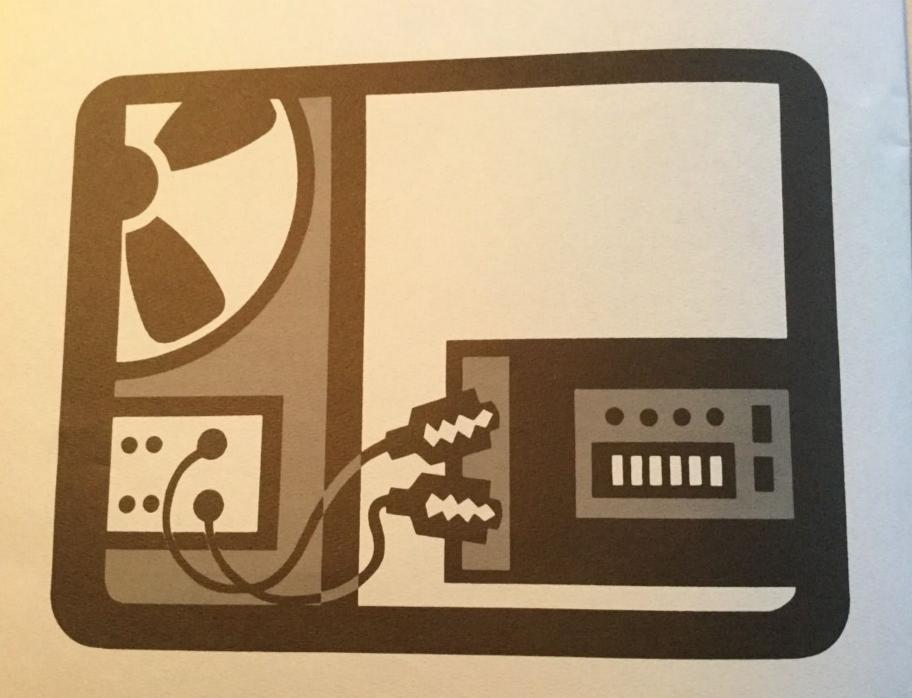
Although it is clear that automatic monitoring and control offers the opportunity to effect cost reductions, there is no feasible way at this time to arrive at quantitative estimates.

The proposal provides for about one year of on-site support by specially trained RCA Service Company technicians. In addition to turnishing maintenance support, these technicians will also provide on-the-job training for Disney personnel to help prepare them to take on the maintenance responsibility after the first year, if desired.

RCA is prepared to offer training at the factory to help prepare Disney personnel to operate the system. This training would be conducted prior to shipment of the system to Walt Disney World. It will include formal software training in a course of two months duration.

For 1969 the proposed implementation recommended by the Disney "sign off" committee is as follows:

- Six months detailed requirements study to develop firm system definition, specifications and cost.
- Design and build two terminals, tie in with a computer, and under software control, conduct demonstration for Disney personnel. Release of additional terminals to production is contingent on this demonstration.



Automatic Test

Concept:

Recent studies have indicated that for complex electronic equipment the fault isolation task consumes up to 80% of the repair cycle. In other words, it may take up to 4 times as long to determine what requires correcting than it does to correct it.

Automatic test can reduce fault isolation time by a factor of 10 to 40, thus significantly shortening the repair cycle. In addition, it offers a powerful retest capability to provide assurance that the repair action was correctly taken.

Application:

The Digital Animation Control System (DACS) and other modern, complex electronic systems to be installed at Walt Disney World are so critical to the operation that extended shutdown could not be tolerated. Thus, some means must be instituted to assure that spare assemblies used for replacement are in perfect working order. In addition, because many of the spare assemblies are high cost items, it is important to keep quantity low. Fast turn-around time on repair actions is a primary factor in accomplishing this. Automatic test provides the capability of achieving both of these objectives.

In summary, the Automatic Test Equipment System is a tool for the Maintenance activity to speed the trouble shooting of complex electronic assemblies, and provide a fast reliable method of validating repair actions taken.

Growth Potential:

The Automatic Test Equipment System has been so configured that growth can be accomplished quite easily to meet the requirements for

the 1971 opening through EPCOT. For items of similar nature to those for which test procedures have been planned, only a "Unit Under Test" program and matrix board need be assembled. For items of a different type, stimuli and measurement chassis and connections may also be necessary.

In addition, other test stations can be added to the overall system by the addition of cabling and input/output boards to the 70/45 and 1600 input/output stations.

Special Considerations:

The trade-off in automatic test is between cost/failure factors such as:

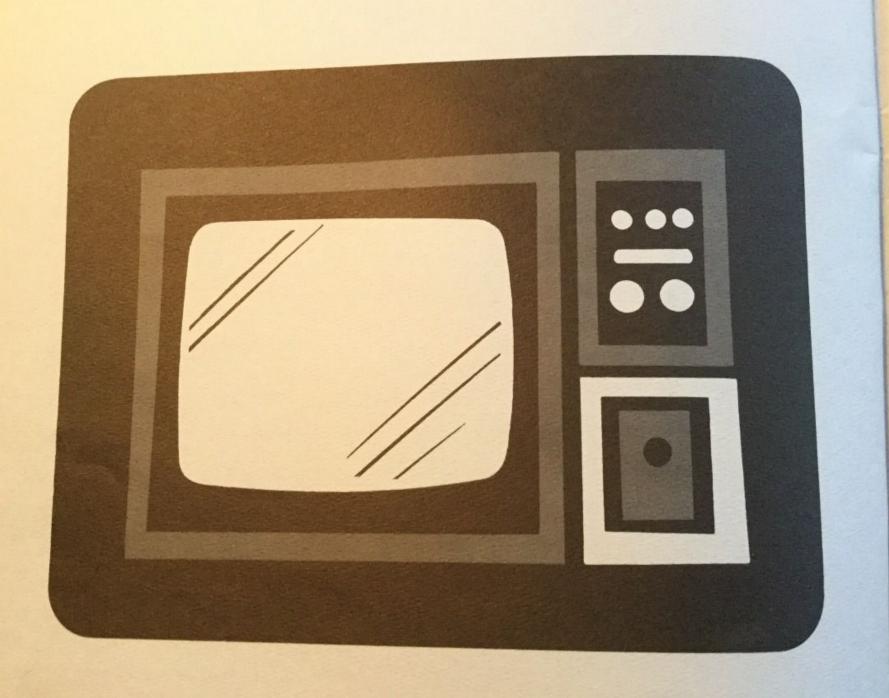
- · Detection of failed parts.
- · Validation of repair actions.
- · Time to accomplish failure correction.

Three main benefits contribute to cost reductions. These are:

- 1. The ability to utilize lower skill levels.
- 2. Reduced numbers of maintenance personnel required.
- 3. Reduced spares costs.

Items 1 and 2 may be particularly important in Florida where the labor market is smaller than in California. This condition is accentuated by the requirement for staffing and training on a very large scale in a comparatively short time.

For maintenance purposes, the Automatic Test Equipment System will be considered together with the Automatic Monitoring and Control System. As such, the one year field support plan is applicable.



Hotel/Motel Room Communications

pisney planners are designing guest accommodations so that the entire stay of a guest will be exciting and delightful. The proposed hotel/motel room communications package will enhance guest satisfaction while contributing to "house" operating efficiency. The equipments proposed reflect the many years of experience that RCA has had in this field.

Guest services proposed for the 1971 opening are as follows:

"Mural TV"

It is proposed that RCA's "Mural TV" color receivers be installed in guest rooms. RCA color television has proven its reliability and excellent performance in millions of homes. More of Walt Disney World's future guests own RCA color television than any other brand. Daily over half a million hotel guests view RCA television throughout the United States.

RCA "Mural TV" color receivers incorporate the experience gained in the home field combined with experience in the institutional field to produce a superior color TV receiver—a receiver designed expressly for use in hotels and motels. Special features are incorporated into the design to enhance guest satisfaction and improve reliability of performance.

The "Mural TV" color receiver proposed for Walt Disney World will incorporate further advances now in the "field test" stage. The 1971 receiver will feature the latest in the art of solid state modular plug-in circuitry, motorless remote control, automatic fine tuning, and other features designed expressly to fulfill hotel/motel requirements. The proposed package cannot be matched by any other manufacturer.

Multiple Outlet System

The proposed multiple outlet system to feed entertainment, informational and educational programs to each of the guest room receivers has been engineered to provide sharp, clear pictures with high reliability. Solid state reliability, advanced circuitry, passive distribution networks and components are all engineered as an integrated system for balance and consistent performance.

The number of available channels (12 plus FM) fully optimize the utility of color television and will provide cost-economic distribution of program materials of local interest.

Program sources can be selected from off-air AM/FM radio stations, tape, records or television originating in the video-audio production programs.

RCA has engineered and installed multiple outlet distribution systems for hotels and motels since the post-war introduction of commercial television.

AM/FM Radio

Decorator styled control panels built into the room furniture are proposed to further enhance guest satisfaction by providing a choice of relaxing high quality music or other radio programs. Incorporated into the room services panel will be other guest conveniences available at a finger tip control location. Message-at-desk and morning call features have been proposed as an added service for the guest.

Room Status/Maid Locator

This system expedites the renting of guest rooms by providing current status information on every room. Registration and housekeeping functions can see at a glance the condition of all rooms in the house plus the location of the maids at any given point in time. Maids insert a key plug into a maid jack in the communications console in the guest room to signal her location and completion of work.

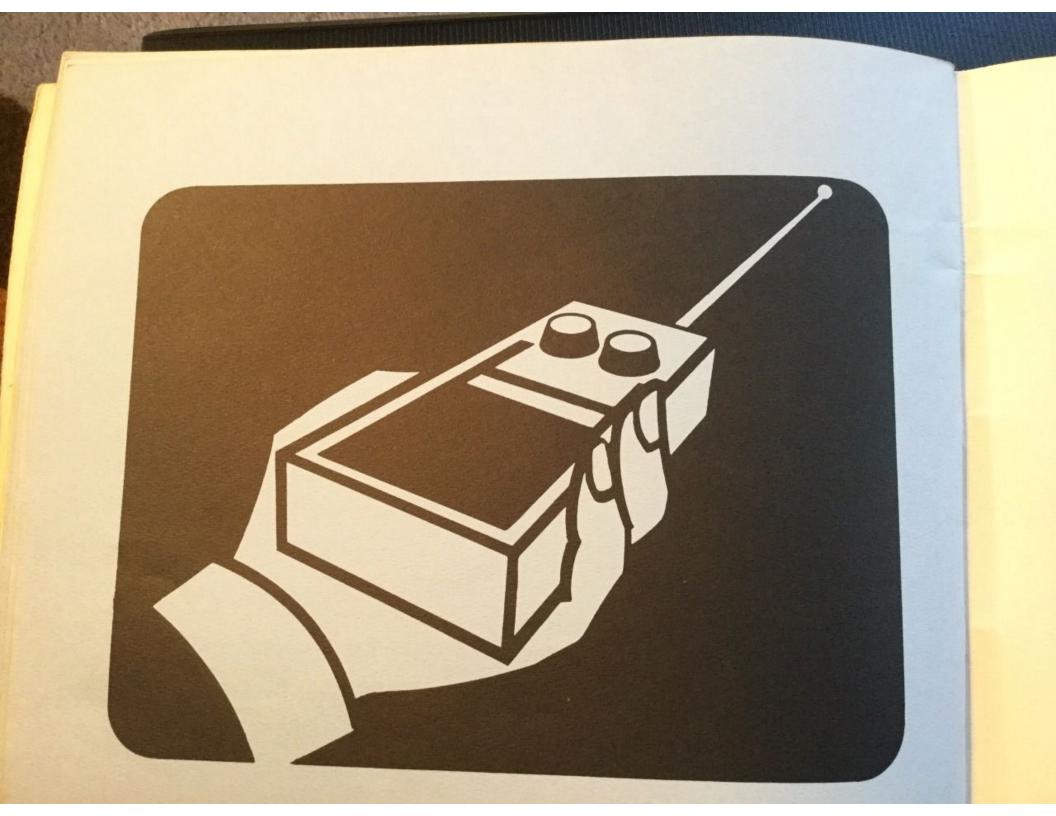
Reduced personnel requirements, faster room turnover and better guest service are the advantages being obtained daily by hotel and motel operators using the RCA signal systems described above. The embarrassment of taking a guest into an unmade up room does not occur.

RCA signal systems are now used in approximately 100,000 guest rooms in the United States, providing simplicity of operation, high reliability and at-a-glance readout at a reasonable cost.

The circuitry has been simplified, however the capability to computerize the room status/maid locator system has been retained.

RCA Service Company Maintenance

Quality maintenance is a must for continued reliability of all systems and equipments proposed. RCA Service Company technicians are fully qualified to provide this quality maintenance.



Mobile Communications

Concept:

A total systems approach was taken in developing the modern communications facility to serve Walt Disney World operations, maintenance, security, transportation (monorail, submarine, etc.), entertainment and construction. This approach provides a communications system that is an integral part of WEDCOMM and conforms to the Walt Disney World requirement for centralized control of communication.

Applications:

Mobile communications as proposed for the 1971 opening provides the radio link with people of Walt Disney World and vehicles. The table that follows illustrates the applications. As covered under Growth Potential and Special Considerations, connections to services external to Walt Disney World can be accommodated and may be added when desired.

Types of Communications and Users of Each

	2-Way Portables	Paging Receivers	Vehicula 2-Way Mobiles
Operations			
Maintenance			
Security			
Construction			
Entertainment (Special Events)	•		
Monorail			•
Submarine			

Growth Potential:

Radio communications systems have an inherent system growth potential because of the nature of the product and the simplicity of

systems design. Base stations can be added as the system is enlarged and the needs grow, and console positions can be added to the System Communication Center, designed to accommodate expansion after the 1971 opening.

The master/slave concept incorporated in the console design will allow for addition of console positions at minimum cost. In order to accommodate expanding and varied radio communication requirements, it is proposed that the console controls cover six radio channels. Vehicular mobile, two-way portable and paging receivers can be added to the original system on an as needed basis. Two-way radio will be specified with two RF channel (dual frequency) operation where required to allow for maximum flexibility of system frequency usage.

The modular design concept of the system will assure that future expansion can be accomplished economically.

Special Considerations:

Speakers will be provided at the console positions to monitor state police, road service, weather or other public transmissions of possible value.

If desired, at a future date, highway traffic control and vehicular assistance service could be incorporated in this system. Highway emergency call boxes could also be served.

Because much of the detailed system design is affected by FCC frequency assignments, it is recommended that action be initiated at any early date to accomplish this step. RCA is prepared to assist Walt Disney World in this connection.

As the number of vehicles and the area of Walt Disney World served by them increases, it may be desirable to add capability for automatic vehicular identification, vehicular location, selective call to individual or groups of vehicles, and other customized services. When Walt Disney World opens in October, 1971

WEDCOMM will be fully operational

Walt Disney World Milestones

3/50 3/50 3/50 3/50 4/50 4/50 8/69 8/69 8/69 8/69 8/69 8/70 8/70 8/70 8/70 8/71

Water

- 1. Primary Distribution System
- 2. Secondary Distribution System
- 3. Permanent Wells

Power

- 1. Central Plant
- 2. Primary Distribution System
- 3. Secondary Distribution System

Sanitation

- 1. Storm Drain System
- 2. Solid Waste Disposal
- 3. Sewage and Treatment Plant

Attractions

- 1. Tomorrowland
- 2. Adventureland
- 3. Main Street
- 4. Frontierland
- 5. Fantasyland
- 6. Holidayland
- 7. Liberty Square
- 8. Hotels
- 9. Monorail

Walt Disney World Complete 10/71

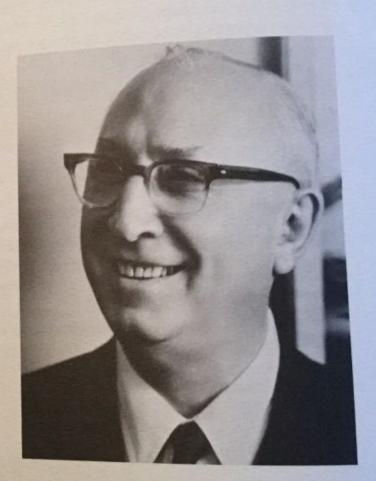
WEDCOMM Complete 10/71

Walt Disney World proposes to make a reality out of a Community of the Future—a community that will be as unique in the year 2000 as it is today.

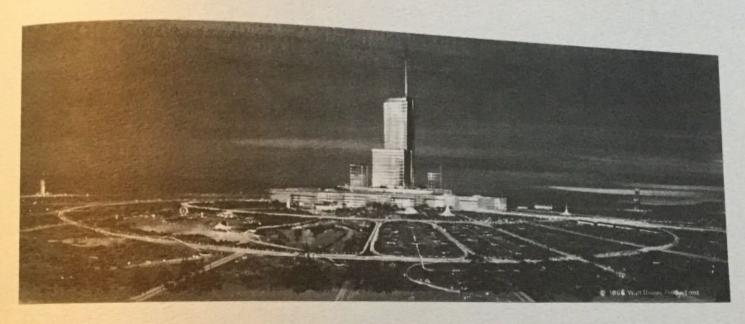
The community will be a rare coupling of Disney creativity and the practical results of industrial and social research.

It will bring to life a long-cherished Walt Disney dream.

Roy O. Disney



Walt Disney World in 1981



EPCOT, the Experimental Prototype Community of Tomorrow . . . and other elements of Walt Disney World . . . the Jet Airport, the Industrial Park, the enlarged Entrance Complex and Monorail . . . will grow out of the economic base established by the 1971 complex.

EPCOT and related elements of Walt Disney World will represent the culmination of Walt Disney's vision of how future urban life can be enriched through coupling technology with human ideas. In a larger sense, EPCOT as a reality, will represent just the beginning of the Walt Disney dream, as this innovative approach to city development begins to make its impact on city planners in all parts of the world.

Walt Disney World in the decade following its opening, will be the result of a coalition of productive forces set in motion by Walt Disney. RCA, in its proposed role as a major participant for Walt Disney World's information-communications system, has jointly defined with Disney a system... WEDCOMM... that will facilitate continuous evolution of new and better ways of American life.

Walt Disney World and WEDCOMM in 1981

WEDCOMM in 1981 ... the EPCOT era ... is envisioned as having broad functional components:

Education, Health, Safety, Utilities, Municipal Government, Monetary, Transportation and Recreation ... in addition to vastly enlarged operations and administrative functions.

To assure that WEDCOMM can be economically evolved to meet these requirements, three important principles will be observed:

- 1. The modular design concept will be retained.
- 2. Planning by the Program Management Office will formally address the requirement for future planning on a scheduled basis. All planning will be assessed for its forward looking aspects.
- 3. The application of proven, standard product line equipments will be made.

Education:

Children today live in one world and go to school in another. While not at school, they live in a world that is fast paced, they receive information and entertainment from many modern sources. School is often not a totally relevant experience for them. This will not be the case in EPCOT.

Technology offers an opportunity for providing more effective instruction and less administrative work for the teachers. Modern presentation techniques, gamelike and individualized instruction and new drill and practice methods can go a long ways toward making school a happy and relevant experience.

RCA has the broadest product line in the field of electronic instructional systems. It is pioneering the development of computer based instruction. It is one of the leading publishers of textbooks. RCA Systems Development is actively working with architects to develop information-communication master plans for new schools during the architectural and engineering design phase. It is new construction that offers the highest potentials for significant innovation and RCA proposes to work with the school planners of Walt Disney World to fully capitalize on this potential.

An innovation worth serious consideration is the development of closed circuit television accredited graduate education courses which would be taught in special receiving classrooms located in the Industrial Park. This might be accomplished through a local university in association with the RCA Institutes. Computer based instruction would also be offered the tenants of the Industrial Park and might be integral with television taught course material.



Health:

From the social viewpoint, a healthy population is a happy population, with individuals able to respond in a natural inter-social manner. The ravages operation of society. If people are not distracted by the pain, suffering, educated, and to take advantage of the many opportunities which life marked by good health has to offer.

Rapidly advancing technology has made better treatment available for many medical problems. A more comprehensive understanding of complex treatment can be more accurate, rapid and meaningful.

RCA Systems Development is actively developing concepts for health systems which couple the available knowledge in life sciences engineering with automated information handling. Among these programs are multi-test health screening systems, the automation of the patient hospital admission process, patient-oriented hospital information systems and medical communications systems involving hybrid systems (television, optics, audio, digital and analog computers, etc.).

This knowledge and experience will be carried forth to EPCOT's requirements.



Walt Disney World and WEDCOMM in 1981

Safety:

WEDCOMM will support a wide variety of safety functions in 1971; by 1981 these will have greatly increased in scope. Additional functions for WEDCOMM will include the following:

- Automated heat, smoke and intrusion detection and reporting.
- The jet airport will have advanced passenger, baggage and cargo handling. It will feature automated maintenance facilities.
- Dome and ventilation control for EPCOT's environmentalized central section.
- Air and water pollution control and the disposal of solid and liquid wastes.

Successful handling of this problem will depend upon careful analysis of the entire process by which pollutants and wastes are generated, from input to output. WEDCOMM utilizing the computer, appropriate sensors and communications should be geared to sampling, measuring and reporting at all critical stages.



Utilities:

WEDCOMM will monitor Walt Disney World's expanded utility requirements which in the EPCOT era will be many times greater than in 1971.

Automated reading, billing and collection of water, electricity and gas services will be implemented. This will be a convenience to residents while reducing the cost of these separate operations.

Municipal Government:

WEDCOMM's computer operations will provide automated county and municipal tax services.

School administration records (payroll, space utilization, equipment, employees, pupil records and grades, etc.) will be gathered, manipulated and reported via WEDCOMM's computer.

The current status of legislative actions and bills will be automated and available on a real time inquiry basis. RCA has developed such a system for the legislature of the State of Florida.



Monetary:

WEDCOMM will function as an integral part of EPCOT's monetary system. WEDCOMM Will long the lectronic banking, credit card operations, credit transfer and insurance.

Puchase transactions will be accomplished through automatic debiting of purchase Iransaction line remote terminals at the point of purchase will handle the transactions. (The checkless/cashless society.)

Credit card operations will be expanded to include transportation and entertainment.

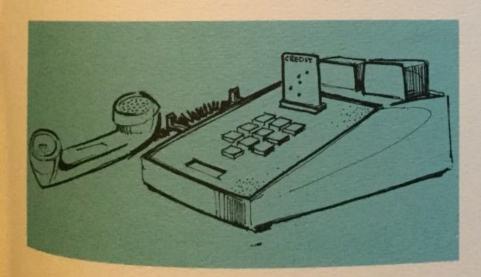
Recreation:

WEDCOMM will be adapted to support the expanded recreational requirements of EPCOT. CCTV/CATV local programming will carry information concerning recreational events as well as provide live coverage of selected events.

Transportation:

In the EPCOT era, Walt Disney World will have a complex transportation network . . . people movers . . . a monorail . . . two levels of automotive transportation . . . and a jet airport. Several elements of WEDCOMM will support this greatly expanded network.

- The computer will establish schedules and dispatching and handle reservations, ticketing and revenue accounting.
- · Automatic monitoring will furnish early detection and malfunction
- · Closed circuit television will be used extensively by operators and at the System Communication Center.
- Mobile communications will furnish the linkage between vehicle operators, supervisory personnel and the System Communication Center.





Mobile TV equipment Tange Signal processing and simp Sustains - Barbanaring Pysternia, Plantiquaring fretaflation and maintonince service these station 2-way FM Man storage systems Spectra 70 demputer series Video data systems Browlessing services Microwave Mobile Zway FM Fortable Zway FM Receivers, horse SOURCE FOR MASTER SYSTEMS **ENGINEERING** Data processing operations Color and black-and-white TV Single sideband SOURCE FOR SERVICING CENTRALIZED CONTROL OF SPARES POINT OF RESPONSE TO DISNEY **RCA** offers MANAGEMENT COORDINATED LEASING ARRANGEMENTS **Technical** and **EQUIPMENT COMPATIBILITY Management Integration** Hospital
Hotel and motel
Mobile equipment COMMON STANDARDS AND PRACTICES Electronic data processing COORDINATED DRAWINGS CONTROL Film recording systems Magnetic and optical Parts and accessories, replacement Vahicular traffic systems

cording studios Components Educational

EBUCKTION townizal

Picture monities
Picture tubes, color and black a
Professional equipment
Receivers, color and black and a
Relay acutoment

Studio equipment
Switching equipment
Toph players
Tape recording equipment
Transmission equipment, 2500
Transmission services, satellite
Transmistions

Studio aguipment

The Proposal

RCA intends to participate in the development of Walt Disney World. The company believes that it ished dream of Walt Disney. The information-communication requirements are a natural avenue of

RCA proposes to act as the major contractor for Walt Disney World's information-communication companies.

The company's products, systems and services span the electronic information handling spectrum. The company is in a position to supply Walt Disney World with the majority of its information-communications equipments from our wide standard product line — computers, broadcast equipments, television receivers, audio devices, etc.

As a matter of routine, RCA handles programs which involve management of dozens to hundreds of vendors. RCA is, therefore, in a position to provide Walt Disney World with strong capabilities in

The procedures that will be followed on Walt Disney World's requirements are based on proven methods that have been refined by RCA on major systems programs ranging from color television ... to automated information systems ... to microwave nets ... to satellites such as the TIROS/ESSA weather satellite series.

As a SYSTEMS company, RCA systems engineering will build into the "baseline" configuration for 1971, the options to accommodate new or changed functions, advances in technology and growth requirements of Walt Disney World.

As a RESEARCH-ORIENTED company, RCA's research base will provide a steady stream of technologies ensuring that Walt Disney World will remain forever young.

RCA intends to establish a permanent program management office for the purpose of planning, execution and coordination. It will be staffed with resident senior systems personnel with strong project management backgrounds that cover data processing, television, mobile and microwave and other forms of communications. This team will be supported by a designated team of RCA specialists.

RCA feels that no other company could approach Walt Disney Productions with as much justification in proposing to serve as the information-communications contractor for Walt Disney World.

REA Systems

Development

Systems Engineering is an orderly way of examining and treating complex problems. It first determines the objective to be reached. It then considers all factors that bear on the possibility of reaching the objective and the relationships among them. The result is a unified system concept and procedure in which each element is conceived and developed as a part of the whole.

