



**TOGETHER**  
*for a sustainable future*

## OCCASION

This publication has been made available to the public on the occasion of the 50<sup>th</sup> anniversary of the United Nations Industrial Development Organisation.



**TOGETHER**  
*for a sustainable future*

## DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

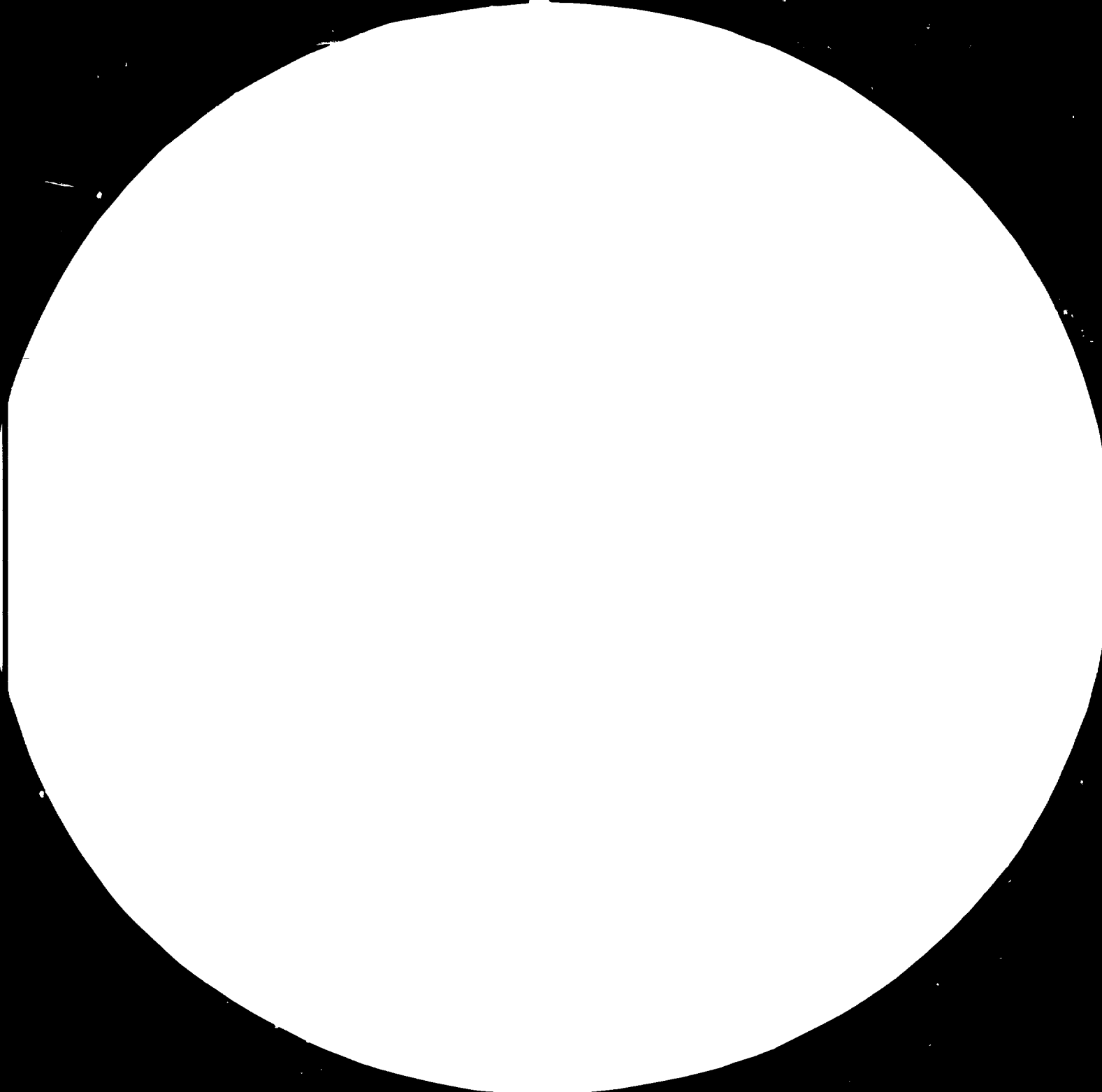
## FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

## CONTACT

Please contact [publications@unido.org](mailto:publications@unido.org) for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at [www.unido.org](http://www.unido.org)





1.8 2.5

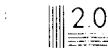


Figure 1. Resolution test targets used to determine the resolution of the system. The resolution of the system is defined as the resolution of the target that is just resolved.

11375

ASSISTANCE TO YUGOSLAV CENTER

FOR ORGANIZATION AND DEVELOPMENT.

JUCOR - UNIDO

DP/YUG/75/027

000.71

PROJECT FINAL REPORT

April 1980

ARTHUR ANDERSEN AG

April 29, 1980

UNIDO CONTRACT NO. 77/81  
Project No. DP/YUG/75/027  
Activity Code 10 23 31.4

PROVISION OF ASSISTANCE TO YUGOSLAV CENTER  
FOR ORGANIZATION AND DEVELOPMENT - JUCOR

PROJECT FINAL REPORT

As stipulated in the Contract between the United Nations Industrial Development Organization (UNIDO) and Arthur Andersen AG, and between UNIDO and the Yugoslav Federal Government Services for Technical Assistance, this project final report summarizes all the work performed in accordance with 1) the UNIDO substantive Terms of Reference and Arthur Andersen AG Statement of Proposal and Appendices, both included in the contract document dated June 10, 1977, and 2) the related Project Document revised July 1978.

This report has been prepared and jointly reviewed by Arthur Andersen AG and the JUCOR project manager, Mr. M. Nikoletic, as well as discussed in preliminary form with Mr. K. Moll, UNIDO officer in Belgrade on March 17. The contents are organized under the following sections :

1. Objectives and Approach
2. Scope of Training
3. Cooperation Between Arthur Andersen and JUCOR
4. Evaluation of Performance
5. Future Actions for JUCOR's Consideration
6. Suggestion for Improvement - Future Similar Projects
7. Exhibits and Field Mission Reports

## 1. OBJECTIVES AND APPROACH

This project was undertaken with the overall objective of providing assistance, at an advanced level, to the members of the Yugoslav Centre for Organization and Development (JUCOR) in the further development of their management consultancy capability, both external and internal, and thereby enable them to give practical assistance to their clients in the better utilization of resources in industry and other sectors of the economy.

This assistance involved the preparation and conduct of a series of comprehensive seminars for JUCOR members, (Yugoslav consultants) in different professional topic areas. For most of the seminars, field missions in Yugoslavia and follow-up activities were conducted as well as selected management briefing sessions.

The objectives of the field missions were: 1) to better assess the Yugoslav industrial and consulting environment relative to the topic matter of the individual seminars and to the current state of the arts practiced in other European countries and the U.S., and 2) to serve as the basis for structuring the seminar agenda and preparing for its conduct.

The specific objectives established and followed for the seminars, after appropriate tailoring depending upon the topic, included:

- Presented a comprehensive overview of Arthur Andersen & Co.'s scope of consultancy practice, personnel development policies, methods of operation, training, underlying philosophies and future technical direction during the first seminar on Management Consultancy Practices.
  
- Provided a comprehensive overview of Arthur Andersen & Co.'s methodological approach to developing and installing planning and reporting systems for the different functional and industry areas which formed the basis of the subsequent seven seminars.

- Informed the participants, as part of the seminars and selected management briefing sessions, of the current issues and developments from a management perspective impacting each of the main topics, and to go into the "how to" methodology, as appropriate, in a number of the related aspects and underlying elements.
- Further reinforced the concepts and methodology presented by selectively preparing different reference manuals, and by use of numerous problems, case studies, quizzes and panel discussions.
- Provided a bridge, through discussions and selected presentations, by which the participants could think of the practical application in Yugoslavia of the material presented, both now and in the near future. In addition, identified the similarities and dissimilarities where appropriate, between the approach presented by the consultants and that used by the Yugoslav enterprises or institutes, and discussed future actions to be considered collectively by JUCOR and individually by JUCOR members.
- Exposed the participants to a wide number of Arthur Andersen & Co. experts in the different areas of our functional and industry consultancy practice, and explained practical, workable approaches based on their experience. Also, for selected topics, arranged for guest speakers from industry to present their perspective and experiences, as well as selected tours.
- Used audio-visual aids to help in communicating and reinforcing the seminar presentations. Also for each seminar provided the participants with a comprehensive set of seminar materials for later reference and practical use in Yugoslavia, including selected methodology planning charts and manuals. This material was drawn from Arthur Andersen & Co.'s own internal training and other sources.

## 2. SCOPE OF TRAINING

This section summarizes the gradual changes agreed to and made to the overall program based on further observations and experiences gained, thereby assuring that JUCOR's objectives would be fully met.

The original contract envisioned a series of six seminars (in English) of three weeks each preceded by a five man week field mission. The initial topics to be covered were:

- Management Consultancy Practices
- Internal Consultancy Practices
- Industrial Project Implementation
- Management Information Systems
- Corporate Planning
- Financial Management

Early in the program it was suggested by Arthur Andersen to limit the seminars to two weeks (considered already to be the maximum for this level of training based on our own internal training program), thereby increasing its attraction to the consultants who would participate and also free up more time for other topics, etc. Also, after the first field mission in connection with General Management Consultancy Practices, Arthur Andersen started the practice, with JUCOR's agreement, of issuing Field Mission reports summarizing observations and recommendations useful to the JUCOR board and its member institutes and enterprises. This practice, although not called for in the contract, was continued for all field missions.

Also, early in the project, JUCOR requested that topics on Marketing and Production be added to the program, and that Internal Consultancy Practices be dropped. Agreed to reduce the remaining front end field missions and allocate time for follow-up missions and the drafting of a Financial Management and Systems Manual. In addition, it was agreed to prepare and issue methodology manuals for Corporate



Planning and Marketing, drawing on Andersen's internal training material and other sources. The Financial Management and Corporate Planning Manuals were translated into Serbo Croatian through JUCOR.

Lastly, because of the major need for EDP awareness and training identified during the first field mission and confirmed by JUCOR, it was agreed to modify the program further by adding a topic titled "Introduction to EDP". The results of all these changes were incorporated into a revised project document drafted by Messrs. K. Moll, N. Nikoletic and R. Flores in Belgrade in June 1978.

In connection with the preparatory missions for EDP held in Belgrade and Zagreb, it was agreed to divide the seminar into: 1) a two day management briefing on EDP and 2) an eight day "how to" training on conducting a preliminary systems design of computer systems. It was agreed to adopt the two level approach also for Production Management. This concept was very successfully received by the JUCOR participants and enabled more senior JUCOR executives to attend the briefing sessions. The demand for the EDP Management Briefing was very strong and accordingly as a follow-up activity, a second Management briefing on EDP was held in Dubrovnik on March 10-12, 1980. This was preceded on March 7 and 8 by follow-up sessions on Corporate Planning and Financial Management.

The overriding objective of all these modifications was to be responsive to JUCOR's needs and objectives based on experiences gained early in the program. Careful attention was given to assuring that the original time and funding allocated under the original contract were fully utilized and accounted for throughout the entire process (See Exhibit I for reconciliation of these agreed changes to the original plan). Arthur Andersen reports that they incurred time costs and other expenses significantly in excess of what they were reimbursed for under the contract, but they made this additional effort and investment to help assure the success of the training.

3. COOPERATION BETWEEN ARTHUR ANDERSEN AND JUCOR

There has been excellent cooperation and communication over the course of the project between JUCOR representatives (board members, the JUCOR project manager and collaborators, and other JUCOR members), and Arthur Andersen & Co. which has contributed greatly to the project's success together with the support received from UNIDO and UNDP officers. In judging this cooperation and communication it is important to recognize that this project started in October 1977 and has been active through March 1980, thereby covering a period of about 2 1/2 years.

The project was mainly conducted in Yugoslavia touching each of the Republics and one of the independent provinces. Also, an important portion was conducted in the United States (St. Charles - Chicago area). Different languages, interpretations, environments, training customs, and approaches were involved as well as the need to plan and arrange for the different field and follow-up missions involving many institutes and enterprises, and the eight seminars themselves which were held at different locations. From the side of the project management team (JUCOR and Arthur Andersen & Co.) this required frequent coordination on speakers, (both Arthur Andersen and guest speakers), agenda material and related selected translation, arranging field mission and seminar schedules, customs clearance, simultaneous interpreters, advance seminar announcements, hotel accommodations, transportation, feed back evaluations and tailoring of later seminars based on experience gained, progress reporting to UNIDO, UNDP and JUCOR board, providing for visual aids and other equipment, etc.

Considering all these factors and judging the high ratings given to the seminar content, presentations and material, and arrangements, it can be judged that the cooperation was outstanding just to make all these events happen with great success and as scheduled. Of course, it is normal for some misunderstandings to occur given the complexity

of the project and its duration. The important thing is that when they would occur, however infrequently, the issues were jointly discussed and actions taken to resolve the difficulty and keep the project moving ahead. The support of UNIDO and UNDP was particularly helpful and responsive at these times. In sum, good teamwork, cooperation and a lot of hard work and long hours played a major role in the success of this entire project together, of course, with professional expertise and practical experience.

#### 4. EVALUATION OF PERFORMANCE

In stepping back and judging this entire project, it is fair to conclude that this assignment has been a success. As set out in the Terms of Reference, the following evaluation criteria have been applied and are discussed within this section. (Also see preceding section for comments on cooperation between Arthur Andersen and JUCOR).

- . Quantitative Evaluation
- . Qualitative Evaluation
- . Evaluation of Practical Results

#### QUANTITATIVE EVALUATION

---

The coverage of these seminars and related field missions and executive briefings was rather comprehensive and broad. An analysis of the various key statistics follows:

##### A. Number of Seminars, Missions, and Management Briefings

##### 1. Management Consultancy Practice

- Field Mission (Beograd, Novi Sad, Zagreb, Ljubljana, Titograd, Skopje and Sarajevo - November 1977-January 1978)
- Seminar (St. Charles, March 6-17, 1978)

##### 2. Industrial Project Implementation

- Field Mission (Beograd and Ljubljana - January-February 1978)
- Seminar (St. Charles, April 10-21, 1978)

##### 3. Management Information Systems

- Field Mission (Ljubljana, Nova Gorica and Novi Sad - September 1978)
- Seminar (Beograd, November 13-24, 1978)

4. Corporate Planning

- Field Mission (Beograd, Zagreb and Ljubljana - Sept. 1978)
- Seminar (Dubrovnik, December 11-22, 1978)
- Follow-up Session (Dubrovnik, March 6, 1980)

5. Financial Management

- Field Mission for Manual including comparative analysis between financial statement presentations in Western countries and in Yugoslavia (January-February 1979)
- Seminar (Dubrovnik, March 26-April 6, 1979)
- Follow-up Session (Dubrovnik, March 7, 1980)

6. Marketing Management

- Field Mission (Ljubljana, Velenje and Belgrade - February 1979)
- Seminar (Herceg Novi, May 7-18, 1979)

7. Introduction to EDP

- Management Briefing (October 15-16, 1979)
- Seminar Samobor (October 17-26, 1979)

8. Production Management

- Management Briefing (Bled - November 12-13, 1979)
- Field Mission (Ljubljana and Zagreb - June 1979)
- Seminar (Bled - November 14-23, 1979)

9. Introduction to EDP

- Second Management Briefing (Dubrovnik - March 10-12, 1980)

In summary, eight formal seminars were held comprising 80 seminar presentation days (about 425 man days including seminar conduct preparation, and methodology manuals, etc.) plus over 190 expert days in the conduct of the field missions, sessions, executive briefings, and project planning and administration.

B. Manuals and Formal Reports Issued

For each field mission conducted a written report was prepared and issued by Arthur Andersen summarizing the results of the visits to the individual institutes, enterprises and government offices and chambers of economy. Topic presentations including hard copies of all visuals used, group discussions, draft seminar agenda and points raised by JUCOR representatives for consideration in finalizing the respective seminar agenda. Brief write-ups for the follow-up sessions are included in this report.

These written reports were felt useful by the joint project managers as a means to summarize and communicate our findings and recommendations to all parties concerned at JUCOR, UNDP, UNIDO and Arthur Andersen & Co.

Furthermore, after each seminar (eight) a seminar report was issued containing the following information:

- Objectives and Approach
- Participants Profile
- Seminar Agenda and Faculty
- Evaluation and Other Comments by Participants
- Exhibits including detailed listings of participants, agenda, speakers résumé, evaluations, and material given to the participants. Also, as appropriate, a copy of the Seminar Certificate.

In addition, for three of the seminars comprehensive manuals on methodology were prepared and issued.

Corporate Planning (English and Serbo Croatian)  
Financial Management (English and Serbo Croatian)  
Marketing Management (English)

While not directly specified in the initial arrangement, these "how to" methodology write-ups based on Arthur Andersen's internal training and engagement material were requested and prepared to serve as an integral part of the respective seminar as well as serve as a future reference for the Yugoslav consultants on their client engagements and internal training.

C. Certificate of Participation Issued

A formal certificate of participation (See example in Exhibit II) was given to the participants attending the EDP Preliminary System Design School and the Production Management Seminar in recognition of the successful participation at this seminar. The certificate was signed by the JUCOR Project Leader, Mr. M. Nikoletic, and the responsible Arthur Andersen & Co. Partner, Mr. R.N. Flores. It was agreed that certificates would also be given to the participants attending the earlier seminars and accordingly signed certificates for the attendees at the other seminars were given to Mr. N. Nikoletic for distribution.

It was felt important and beneficial to give the participants this additional formal recognition of the advanced training they received to enhance their professional credentials.

D. Analysis of Seminar Agendas and Related Field and Follow-Up Missions, and Management Briefings

For each seminar an appropriate balance was found between faculty presentations, panel and group discussions, case studies and problems, methodology, quizzes, and questions and answers. In addition, depending on the individual seminar, selected evening reading assignments, tours and group visits to physical sites, IBM's training center, Arthur Andersen's training facilities, etc. were arranged. For the EDP seminar - Computer Systems Design School, frequent participation problems and work assignments were given due to the detailed level of the training.

Each seminar report includes a copy of the complete agenda and a summary of time spent by main topic/activity group.

A similar approach was followed during the missions and management briefings, keeping in mind the main objectives of each.

E. Summary of Seminar Materials Given to Participants

For each seminar a comprehensive set of material was given to each of the participants in binder form. It included Arthur Andersen methodology charts, sample work programs, selected manuals, case write-ups, copies of all visuals used during seminars, selected articles, report layout examples, case problems, industry planning charts, etc. Typically each seminar participant received two volumes of material for use at the seminar and for later reference and use on engagements or internal training at their respective enterprise or institute.

Each seminar report contains a detailed listing of all materials given to each participant.

F. Analysis of Seminars, Briefings and Follow-Up Sessions

A profile of the eight full 10 day seminars shows a total of 51 participating (30 institutes and 21 enterprises and chambers of economy). This represented 230 attendees (143 from institutes and 87 from enterprises and chambers of economy) making up 1,852 seminar days. Of these 230 participants, 175 attended only one seminar which means the distribution of the training to different people was good.

As follow-up, a second Management Briefing on EDP was conducted for 35 participants for a total of 105 briefing days. The mix was nine institutes and seven enterprises, and chambers of economy (For the first EDP briefing 36 participants attended for two days).

In the follow-up sessions on Corporate Planning and Financial Management there were nine participants representing two institutes and three enterprises and chambers of economy.



G. Analysis of Seminar Faculty

Faculty for the seminars was made up of Arthur Andersen & Co. partners and managers having extensive experience in the various functional, industry and technical areas related to the individual seminar topics. Mr. Ronald Flores, engagement partner, was involved in the planning and conduct of each of the seminars as well. Many of the faculty members also took part in the field and follow-up missions as well as the management briefings. In addition to the topic expertise a number of the faculty had prior experience in Yugoslavia. For the Corporate Planning and Marketing seminars guest speakers from West German industry were also invited to make presentations, and for the Manufacturing Seminar, IBM made a presentation at their training center near Bled. A summary of the faculty follows:

<u>Seminar/Briefing/Follow-Up</u>	<u>Number of AA&amp;CO Main Faculty</u>	<u>Number of Guest Speakers</u>
1. General Management Consultancy Practices	4	10 (AA&CO)
2. Industrial Project Implementation	4	1
3. Corporate Planning	4 (3)*	4
4. Management Information Systems	5 (3)	-
5. Financial Management	5 (2)	-
6. Marketing Management	7 (3)	1
7. Production Management and Management Briefing	7 (4)	1
8. Introduction to EDP and Management Briefings	5 (2)	-
9. Corporate Planning and Financial Management Follow-Up Sessions	2	-

Note: \* Bracket indicates numbers of same faculty also involved in Missions & Briefings.

As each of the seminars were for two weeks, we have found it important to involve a number of faculty both from the participants standpoint as well as the faculty. Different styles, voices, experiences, etc. helped keep the meetings active. Again, the objective was to present the highest quality training possible.

#### QUALITATIVE EVALUATION

As part of each field mission and seminar a feed back evaluation from the participants and JUCOR board members and project management was received. This feed back was through discussions with the participants as well as with JUCOR board and project management representatives. In addition, a written participant evaluation sheet was received from each seminar participant whereon they evaluated the following:

- Individual topics presented
- Seminar binder and reference material given to each participant
- Visual aids used and classroom and training facilities
- Quality of translation (simultaneous and written material) when applicable
- Hotel accommodation
- Overall seminar rating

Also, other written comments and suggestions were requested. The evaluations and comments from the participants are included in the individual seminar reports. However, an overall rating on a scale of 1 to 10, 10 being excellent, for each seminar given by the participants follows:

- |  |     |
|--|-----|
| - General Management Consultancy Practices | 9.4 |
| - Industrial Project Implementation        | 9.0 |
| - Management Information System            | 8.5 |
| - Corporate Planning                       | 8.1 |
| - Financial Management                     | 8.4 |

- Marketing Management	8.8
- EDP	
Management Briefings	9.3 and 8.7
Computer Systems Design	9.9
- Production Management	
Management Briefing	8.3
Seminar	8.7

In supplement to these evaluations the JUCOR Project Manager has on a continuing basis sought the views and comments of the participants which have been overall very favorable.

Also, Mr. K. Moil, UNIDO officer, visited the Production Management seminar on November 15 and 16, 1979 at Bled, Yugoslavia, and led a discussion with the participants as to the quality of the training and related matters. The participants confirmed their strong interest in the subject matter and judged the faculty to be well qualified and the seminar well done.

Another key qualitative evaluation of this project is, in our judgment, the percentage of institutes and enterprises which participated in more than one seminar. An analysis shows that about 70% of all the Yugoslav institutes and about 60% of the enterprises were repeat participants. Considering the breadth of the scope covered, this is an excellent performance. These percentages could be even higher if the Management Briefings on EDP were counted as well, as the attendance for these two totaled over 70 attendees.

In making an overall qualitative judgment on this project, it is important to keep in mind the mix of participants who took part in this training. While for the most part experienced Yugoslav consultants, (external and internal) attended the seminars and related missions and briefings, there was still a wide difference among the participants in their specific experience in the topics of the seminar they attended, their English language capabilities, their age and position within their organization, and their perspective which differed depending on whether they represented an Institute or an Enterprise.

While the project team (JUCOR and Arthur Andersen) reacted positively during this period to minimize the effect of this mix, i.e. arranged for simultaneous translation, translated most of the class problems and other material and manuals, etc., it was still a real life factor which has to be recognized.

#### EVALUATION OF PRACTICAL RESULTS

---

An overall goal of this skills upgrade program has been to provide a basis for the continued development of consultancy skills in Yugoslavia. As part of this overall objective, more specific goals were continually considered by the consultants during this total training process. These specific objectives dealt with:

1. Related training and other activity to Yugoslav environment, to the extent practical
2. Provided, where meaningful, a bridge between research and ideas for the future with practice.
3. Provided means for speeding up the "know-how" transfer.
4. Encouraged the further upgrading and integration of the Yugoslav consultancy profession through the JUCOR body and/or related regional professional groups.
5. Developed frame for initiating and continuing international experience exchanges.
6. Encouraged JUCOR to expose the maximum number of individuals to this training and discussion field mission.
7. Established, as a byproduct of the mission, the means for a timely feedback of the consultants' observations, suggestions and recommendations related to benefiting the development of the Yugoslav consultancy profession.

Although it is still too early to fully assess the results of this program in practice, there has, however, already been evidence of a number of practical results as well as good indications that this trend will continue and get even stronger. The practical results related to some of these main objectives noted thus far can be grouped as follows:

- A. Relate to Yugoslav Environment
- B. Market for Consultancy Services
- C. Personnel Department Skills Upgrade and Tools
- D. Professional Image
- E. Comments on Follow-Up Sessions

A. Relate to Yugoslav Environment

To the extent practical, this was addressed in a number of ways, for example:

- The field missions and enterprise visits and other discussions with institute representatives provided good insight and a practical reference point in preparing for and the conduct of the individual seminars.
- The incorporation into each seminar discussions pertinent to aspects of Yugoslavia's Law of Associated Labor which emphasizes increased productivity, increased income distribution to the workers, and improved management reporting, training and other tools
- As part of the Financial Management seminar the joint preparation of a manual comparing Yugoslav financial statement presentations and related accounting terms with those generally followed in Western Europe and the U.S.
- Worked with JUCOR and regional institute groups in better learning the environment and in discussing any major differences, if applicable.

- Brought to bear knowledge of new EDP developments now underway or planned in Yugoslavia, i.e. assembly of selected mini-computer hardware in Yugoslavia.
- Drew on Andersen's prior experience gained from working with other clients in Yugoslavia.
- Assigned as faculty experts in the subject matter plus, in many cases, professionals who had prior experience in Yugoslavia.
- Issued timely field mission reports on observation and findings which were found to be very helpful to JUCOR members and other interested Yugoslav groups.
- Adapted, where practical, some of the methodology, i.e. Corporate Planning, to reflect some of the main Self Management concepts followed in Yugoslavia.
- Selectively developed with JUCOR glossary of terms and other methodology manuals to aid in understanding and overall effectiveness.

B. Market for Consultancy Services

There is a demonstrated greater awareness among the institute members of JUCOR as to the changing market for consultancy services and the need to gradually adapt their practice to remain competitive, both with other institutes, especially those who specialize in information processing services, but, perhaps more importantly, with the individual enterprises themselves. Specific examples are:

- 1) The growing market for EDP services with emphasis on minicomputers, related software and eventually interactive and distributed processing.

- 2) The need to get prepared for more detailed systems design and installation work and to understand the opportunities and risks related thereto.
- 3) The need for standard methodology tools, and selected Yugoslav software to help in this broadening of practice scope.
- 4) The increased demand for training, supervision and quality assurance at the level of the institutes.
- 5) The recognition that JUCOR could play a major role in better studying the market, and periodically monitoring new developments for its members.
- 6) The request that the Management Briefing on EDP be repeated for other JUCOR members is a direct evidence of this increased awareness. Also, discussions with JUCOR representatives and panel sessions at the different seminars has reconfirmed this new thinking.
- 7) The increased activity of some institutes to conduct client training to broaden their scope as well as indirect practice development.

C. Personnel Development,  
Skills Upgrade and Tools

It is fair to say that through this exposure and training, directly and indirectly, some of the JUCOR members have already taken steps to hire or bring on younger staff, some with EDP training at school or elsewhere, and to develop more formalized training programs. A few institutes have also started to think more seriously about career path planning for their professional staff.

Furthermore, there have been a number of cases where the institutes have adopted and used some of the standard methodology and other techniques in specific Yugoslav client promotions and engagements, as well as in publications and conferences, including internal training sessions. These included corporate planning, marketing, production, and the EDP systems planning methodology, as well as some of the industry information documents. This point was also confirmed by Mr. N. Nikoletic, JUCOR project manager, based on his observations and discussions with JUCOR members. Another indication is that Arthur Andersen is being asked by some of the institutes and enterprises to provide them with additional material and guides for their specific use in their environment as well as join them on specific review and analysis projects for Yugoslav enterprises.

D. Professional Image

Since the first field mission visits to selected institutes in late 1977 and early 1978, there have been important steps taken collectively by JUCOR, at the Republic level, and individually by some of the institutes to upgrade the professional image of management consulting. The steps noted include the increased role of JUCOR in leading the way through their plans to arrange for joint conferences and management training, as well as being the spokesman for the consultancy profession and its members vis-a-vis the community, when appropriate. Similar strategies were noted at the Republic level.

At the institute level this is happening in different forms, one being more emphasis being given to the "institute" image and responsibility for performance and less on the "individual" consultant. Others are, more attention to the need for meaningful business plans and discussions on the future of the institute, scope of practice, training needs, collaboration with other Yugoslav and foreign consultants on specific opportunities, etc.

We understand JUCOR is going through a reorganization to be more responsive to the regulations of the Law of Associated Labor.



We were informed that this process has been helped by these field missions, seminars and related discussions on professional practices.

These are only early indicators and it is important to monitor further developments and encourage continued evolution in this direction.

E. Summary Participant Comments on Follow-Up Sessions

Follow-up one day workshops were held for the participants who previously attended the Corporate Planning and Financial Management seminars. Selected comments from the discussion leaders and participants follow:

Corporate Planning  
-----

Participants of the workshop on Corporate Planning, conducted on March 6, as part of the follow-up mission, have informed us that the training they received during the two-week seminar on Corporate Planning has produced practical results.

For instance, the Chamber of Commerce of the City of Belgrade has conducted a series of seminars on Corporate Planning utilizing the methodology we presented and discussed in December, 1978, in Dubrovnik. The majority of all people exposed to this methodology through the seminars of the Chamber of Commerce, expressed a willingness to implement appropriate elements of this methodology into their planning process.

It was further stated that it would be necessary to expose more line management to the planning methodology. Although these people take a major role in the planning process, they are not well enough trained in applying sound planning techniques. People from a planning staff function, who typically have a basic knowledge of planning techniques, have a natural interest in improving this knowledge. For line management, however, it is necessary to generate an interest in the planning techniques as such. This would then facilitate the communication between institutes engaging in planning assignments and the line management of their clients.

It was viewed as an excellent training for JUCOR members and as good business practice for JUCOR as an organization to develop a corporate plan for JUCOR itself.

#### Financial Management

---

Yugoslav enterprises are experiencing many of the challenges that other companies are facing elsewhere, namely, inflation, raising interest costs, credit squeeze, cost/price pressures, etc. The participants present reconfirmed the need for improved financial management tools and systems to help better manage these growing risks. The need for cash management reporting and tools giving a timely overview of the cash forecast situation from a SOUR viewpoint rather than just the OOUR or RO level was strongly underlined.

Other feedback stressed the following:

- Some of the techniques and methodology covered at the seminar has been and is being put to practical use.
- The need for more periodic and responsive feedback financial reporting in the same level of detail as the plan still exists, more than ever. Also, a closer linkage of the long range planning and the annual plan is encouraged as part of the planning process.
- With trend under the social planning structure to stimulate the OOUR's to plan separately, this area of micro planning will become even more important.
- Profit improvement techniques can be effective in helping enterprises improve performance (A special presentation was held outlining many of the proven techniques). The group confirmed that this approach would be applicable to Yugoslavia as well.

- The trend is towards use of mini computers with more interactive data input/validation processing. A confirmation of the need for more training in this field and related methodology would be useful.
  
- The financial management function can be helpful in bringing financial know-how to areas such as Export Market Analysis and Construction/Project Management.

5. FUTURE ACTIONS FOR JUCOR'S CONSIDERATION

A number of future actions have come out of discussions with the Yugoslav participants to help in the furthering of their Institute/Enterprises' objectives as well as those of JUCOR. The main ones are outlined below:

- 1) Consult with JUCOR on the joint conduct of a study of Yugoslav market for consultancy services and related long range planning activities. (This could be similar to Arthur Andersen's Business Plan 1980-1985 approach as discussed during one of the follow-up sessions).
- 2) Investigate practical way to improve image of professional consultancy and create greater awareness as to benefits to enterprises and Workers Councils.
- 3) Methodology - Tailor and translate selected AA&CO methodology for systems development & installation into tools available to JUCOR members on client engagements or internal training.
- 4) Additional training - Repeat portions of seminar topics covered on a periodic basis.
- 5) Additional "how to" training for JUCOR members in:
  - Systems planning including personnel and hardware
  - Design & install mini computer based systems
- 6) Collaboration with JUCOR members in developing "client" training material and in conduct of training
  - Management and Worker's Council
  - Systems Analysts
  - Users

7) Software development - Pilot for Yugoslav market

- Analyse market/needs
- Evaluate available software packages & effort needed to tailor/translate/adapt
- Determine training needs
- Conduct pilot installation -- joint team basis

Other future actions should be considered by JUCOR and a priority plan developed.

6. SUGGESTIONS FOR IMPROVEMENT - FUTURE SIMILAR PROJECTS

In looking ahead, the project team has developed a short list of improvements to consider in connection with future training. These are:

1. Shorter seminars for advanced training. Even ten days is too long in most cases when the material is complex and English or another foreign language is used. Exception might be for detailed training of younger staff in computer programming or basic systems training.
2. Continue to follow approach of having short management briefing sessions to attract participation from the directors and senior consultants. Experience shows that they have difficulty freeing up to attend longer sessions.
3. Maximize use of simultaneous translation and use of selected translated material.
4. Continue emphasis on case examples, problems and "how to" alternatives.
5. Increase marketing of training to JUCOR members and announcements sufficiently in advance to maximize attendance.

EXHIBITS





## UNIDO PAYMENTS

PLANNED VS

	<u>Payment Type</u>	<u>Amount</u> (US \$)	<u>D A T E S</u>	
			<u>Invoice</u> Date	<u>Money</u> Rec'd
1. <u>General Consult Pract.</u>	Local Expenses	1,825	3/31/78	3/79
F.M: Nov. '77-Jan. '78	Seminar Perf. Rep.	25,000	3/31/78	6/78
Sem: March 6-17, '78	Seminar Final Rep.	14,000	7/10/78	10/78
2. <u>Indust. Project Implem.</u>	Local Expenses	1,825	3/31/78	3/79
F.M: Feb/March '78	Seminar Perf. Rep.	25,000	4/27/78	6/78
Sem: April 10-21, '78.	Seminar Final Rep.	14,000 *	7/10/78 *	7/79
3. <u>Mis.</u>	Local Expenses	1,825	9/78	11/78
F.M: Sept. 12-22'	Seminar Perf. Rep.	25,000 *	12/18/78 *	7/79
Sem: Nov. 13-24, '78	Seminar Final Rep.	14,000	3/13/79	7/79
4. <u>Corporate Planning</u>	Local Expenses	1,825	9/78	11/78
F.M: Sept. 6-15, '78	Seminar Perf. Rep.	25,000	12/27/78	3/79
Sem: Dec. 11-22, '78	Seminar Final Rep.	14,000	3/13/79	7/79
5. <u>Financial P &amp; R</u>	Local Expenses	1,825		5/79
F.M: Nov/Dec. '78	Seminar Perf. Rep.	25,000	5/02/79	6/79
Sem: March 26-Apr. 6 '79	Seminar Final Rep.	14,000	6/18/79	7/79
6. <u>Marketing P &amp; R</u>	Local Expenses	1,825		5/79
F.M: Feb. 7-16, '79	Seminar Perf. Rep.	25,000	6/18/79	7/79
Sem: May 7-18, '79	Seminar Final Rep.	14,000	6/25/79	7/79
7. <u>EDP (Sem: Oct. 15-26, '79)</u>		-	-	-
8. <u>Manufact. P &amp; R (Seminar: Nov. 5-16, '79)</u>		-	-	-
- Project Draft Final Report		15,050		
- Acceptance of Project Final Report		10,000		
	Diff	-----		
	TOTAL	\$ 270,000		
		-----		
		Amount (Under) Over Received - Net		

Amount Under Received Cum.

\* resubmitted 3/31/79

1 9 7 8		1 9 7 9		1 9 8 0	
<u>Budgeted</u> <sup>1)</sup>	<u>Rec'd</u>	<u>Budgeted</u> <sup>1)</sup>	<u>Rec'd</u>	<u>Budgeted</u> <sup>1)</sup>	<u>To Receive</u>
			1,825		
40,825	25,000				
	14,000				
			1,825		
40,825	25,000				
			14,000		
	1,825				
27,216			25,000		
			14,000		
	1,825				
27,216	25,000				
			14,000		
			1,825		
		27,217	25,000		
			14,000		
			1,825		
		27,217	25,000		
			14,000		
		27,217			
		27,217			
				15,050	15,050
				10,000	10,000
-----	-----	-----	-----	-----	-----
\$ 136,082	\$ 92,650	\$108,868	\$152,300	\$ 25,050	\$ 25,050
-----	-----	-----	-----	-----	-----
	(43,432)	43,432			
	-----	-----			
	(43,432)	-0-	-0-		
	-----	-----	-----		

1) Revised Project Document - July 1978

ANALYSIS OF CHANGES -- SEMINAR AND MISSION DAYS

EXHIBIT I B

	ORIGINAL		REVISED 1978		ACTUAL			
	Seminars	Field Missions	Seminars	Field & Follow-up Missions	Seminars	Field Missions	Follow-up & Other	Sub Total
1.. General Management Consultancy Practices	15	25	10	25	10	25	-	25
2. Internal Consultancy Methods	15	25	-	-	-	-	-	-
3. Industrial Project Implementation	15	25	10	25	10	15	-	15
4. Management Information Systems	15	25	10	15	10	10	-	10
5. Corporate Planning	15	25	10	20	10	10	9	19
6. Financial Management	15	25	10	40	10	40	9	49
7. Marketing Management	-	-	10	10	10	10	-	10
8. Introduction to EDP and Management Briefings	-	-	10	3	10	3	27	30
9. Production Management	-	-	10	10	10	10	-	10
10. Follow-up Missions and Other Consultancy Activities Including Project Management	-	-	-	42	-	-	22	22
	<u>90*</u>	<u>150*</u>	<u>80*</u>	<u>190*</u>	<u>80*</u>	<u>123</u>	<u>67</u>	<u>190*</u>
	=====	=====	=====	=====	=====	=====	=====	=====

\* Equivalent Effort/Cost  
See Exhibit I C

RECONCILIATION OF MAN-EFFORT

ORIGINAL PLAN VS ACTUAL

	<u>FIELD MISSIONS</u>	<u>SEMINAR</u>
<u>Original Plan</u>	(Lead Expert)	(Mixed Team)
6 Seminars x 15 days each		90 Seminar days
6 Field Missions x 25 days each	150 Man-days	
 <u>Revised Plan and Actual (Exhibit I-B)</u>		
8 Seminars x 10 days each		80 Seminar days
7 Field Missions of varying man-days plus JUCOR Consulting and Planning	190 Man-days	
 Difference	 40 Man-days over ==	 (10) Seminar days ==== under

Reconciliation

Facts: - Each seminar day equals  
5.3 mixed man-days per  
original contract  
- Cost of 5.33 mixed man-  
days equals 4.0 lead  
expert days (Notes 1 & 2)

Therefore: Cost of 10 seminar days  
under equals cost of 40  
field mission days over

(40)	10
=====	=====

Balance: Nets Out

0	0
===	===

NOTES

(1) Cost of one mixed man-day is \$ 323 per original contract.  
Cost of one lead expert day is \$ 432 per original contract.

(2) 10 seminar days under equals 53.3 mixed days at \$ 323 per day,  
equals \$ 17,216

40 field mission days over at \$ 432 per day equals \$ 17,280

=====

ARTHUR ANDERSEN & Co.

JUCOR - UNIDO

IN RECOGNITION OF SUCCESSFUL COMPLETION OF THE  
**PRODUCTION MANAGEMENT  
SEMINAR**

A seminar for executive and operating management teams  
focusing on the policy and operating decisions required to improve  
the management and performance of a manufacturing company

IS HEREBY AWARDED THIS CERTIFICATE

THIS 23<sup>rd</sup> DAY OF November 19 79

PARTNER Arthur Andersen & Co.

Project Leader JUCOR

FIELD MISSION  
REPORTS

\_\_\_\_\_



JUCOR - UNIDO

MANAGEMENT CONSULTANCY PRACTICES

OBSERVATIONS AND SUGGESTIONS  
BASED ON FIELD MISSIONS

NOV. 1977 - JAN. 1978

ARTHUR ANDERSEN & Co.

ARTHUR ANDERSEN & Co.

G. M. B. H.

WIRTSCHAFTSPRÜFUNGSGESELLSCHAFT

STEUERBERATUNGSGESELLSCHAFT

DÜSSELDORF - FRANKFURT - HAMBURG - STUTTGART

BALLINDAMM 33  
D-2000 HAMBURG 1  
TELEFON: (040) 32 14 61  
TELEX: 2163 025

January 31, 1978

Mr. L. Milosavljević  
c/o  
Institute For Chemistry,  
Technology and Metallurgy  
Dobrinjska Nr. 11

11000 Belgrade / Jugoslavia

Dear Mr. Milosavljević:

As a by-product of the field missions conducted for the topic "Management Consultancy Practices" we agreed that I would present my summary impressions to Representatives of JUCOR, based on my visits to numerous Institutes, Yugoslav' enterprises, and Chambers of Economy throughout Jugoslavia. On December 23, 1977, we presented our preliminary findings to you and other JUCOR representatives. Later in January 1978 I completed these field missions with selected visits to Sarajevo.

The slides used during the December 22 presentation and appropriately updated based on the January visits are included herein for distribution and review by various JUCOR and UNIDO Representatives. As you suggested, we plan to discuss these findings at the forthcoming Seminar in St. Charles on "General Management Consultancy Practices", March 6-17, 1978. I believe they will serve as a good point of reference for discussion as to what might be done to further improve and upgrade the level of consultancy services offered by Yugoslav' consultants, both external and internal. It should be recognized that these are my impressions based on limited visits, discussions, and observations made throughout Jugoslavia. Also, these impressions have been somewhat

GESCHÄFTSFÜHRER: WP/STB WOLFGANG DIEMERLING, WP/STB WOLFGANG HOYER,  
WP/STB/RA DR. DR. DEDO HUNDERTMARK, WP WILLI A. R. JUNG, WP/STB RUDI KLAUER, WP/STB KLAUS LANGER,  
DIPLOM. MATH. GÜNTHER LEIST, WP JÖRG SCHORTMANN, WP JURGEN SCHULTZKE, WP/STB BENNO STRATMANN,  
WP/STB HEINZ VESELY, WP/STB/RA CLAUD-PETER WEBER, STB HANS ZSCHIEGNER

DIE GESELLSCHAFT IST EINGETRAGEN BEIM REGISTERGERICHT FRANKFURT AM MAIN (SITZ DER GESELLSCHAFT) NR. HR B 10462



generalized to apply to various Institutes as a group and therefore variations among some of the individual Institutes do exist.

Key observations relative to future improvements are:

1. A generalized profile of the various Institutes shows
  - Small to medium size practices
  - Modest growth in the past
  - Fairly broad range of services offered, but mainly in study and analysis' areas versus installation work. Yet, limited EDP competence.
  - Absence of any thought out formalized plan for long term development in terms of personnel, growth, improving professional skills, and overall practice development
  - Internal consultancy groups properly view themselves as a service organization within their enterprise and therefore have similar professional practice interest and approaches as the external Institutes.
  - Institutes must cope with the lengthy and unique decision making process present in Yugoslavia.
  
2. There appears to be great opportunity for responsive Yugoslav' consulting services primarily due to business and economic growth and related management planning and reporting needs, the future needs resulting from the new Law on Associated Labor, the growing need to train the Yugoslav' decision making bodies and users in different management systems tools and techniques, and the increasing role of Yugoslavia in assisting other developing countries.
  
3. Concerns facing the practice of the Yugoslav' Institutes today generally are:

- Keeping up technically with the skills and services needed by the Yugoslav' enterprises and other bodies in planning and controlling their operations.
  - The need to bring on more younger professionals and to develop basic and specific training in systems analysis and development methodology and specialized skills.
  - The need to improve the overall image of consultants with emphasis on being able to help enterprises in practically resolving their problems, as opposed to doing only top level type studies.
  - The Institutes risk being left behind by some of the larger internal consulting groups in specialized areas such as computer technology, and integrated systems development.
4. For actions to consider there are a number of specific ones including:
- An organized effort to develop long range business plans at the Institute level and possibly at the level of JUCOR especially for a more complete market analysis.
  - Become more "do" versus "study" oriented recognizing that this will require a major upgrading in training, work methodology, quality assurance, and overall projects supervision. There are high rewards from this type of work, but also high risks if not properly prepared for and handled.
  - Priority attention should go towards developing skills and techniques to deal with the development and installation of computer systems and related business technology as well as developing industry and functional skills in other selected areas including manufacturing, service industries,

ARTHUR ANDERSEN & Co.  
G.M.B.H.

- 4 -

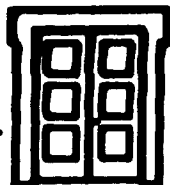
construction project management, etc.  
Also, more attention should go towards  
the recruiting, training and motivation  
of professional people and related aspects  
of career path planning.

- Upgrading the role JUCOR can play in achieving many of these goals on a joint basis, especially in the areas of joint training, development of basic methodology, establishing guidelines for handling joint projects within and outside Yugoslavia, conducting overall market analyses of the Yugoslav' market, undertaking selected research and development, including possible application software development and professional image improvement programs.

Very truly yours,  
ARTHUR ANDERSEN & CO.



Ronald N. Flores



JUCOR-UNIDO

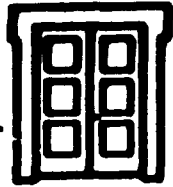
MANAGEMENT CONSULTANCY PRACTICES

OBSERVATIONS AND SUGGESTIONS BASED ON FIELD MISSIONS

NOVEMBER, 1977 - JANUARY, 1978



- \* OBJECTIVES OF FIELD MISSIONS
- \* AREAS VISITED / ORGANIZATIONS INTERVIEWED
- \* PROFILE OF "TYPICAL" INSTITUTE
- \* RELATED OPPORTUNITIES / RISKS
- \* ACTIONS TO CONSIDER

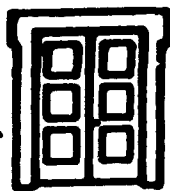


## OBJECTIVES OF FIELD MISSIONS

---

- \* BECOME BETTER FAMILIAR WITH  
INSTITUTES AND ENVIRONMENT
  
- \* MEET REPRESENTATIVES OF
  - JUGOSLAV CONSULTANTS
  - ENTERPRISES
  - CHAMBER OF ECONOMY
  - ETC.
  
- \* BASIS TO PREPARE FOR SEMINAR

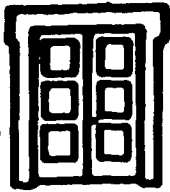
MARCH 6 - 17, 1978



---

AREAS VISITED

- \* BEOGRAD, NOVI SAD
  
- \* ZAGREB
  
- \* LJUBLJANA
  
- \* TITOGRAĐ
  
- \* SKOPJE
  
- \* SARAJEVO

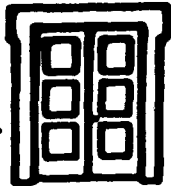


- \* INSTITUTES
- \* CHAMBERS OF ECONOMY
- \* TRAINING CENTERS
- \* ENTERPRISES



## ORGANIZATIONS INTERVIEWED

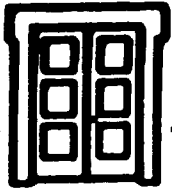
<u>INTERVIEWED</u>		<u>GROUP ORIENTATION</u>	<u>TOTAL</u>
13	PLUS	1	14
3	PLUS	1	4
2			2
7	PLUS	3	10
<u>25</u>	PLUS	<u>5</u>	<u>30</u>
=====		=====	=====



## PROFILE OF "TYPICAL" INSTITUTE

---

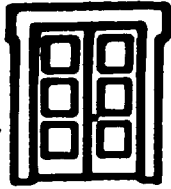
- \* SMALL TO MEDIUM SIZE PRACTICES
- \* MODEST GROWTH HISTORY
- \* FAIRLY BROAD PRACTICE SCOPE BUT  
OFTEN LIMITED DEPTH
- \* LIMITED "YOUNG" INPUT
- \* INDIVIDUAL EXPERTISE OF SENIOR  
CONSULTANTS VS INSTITUTE IMAGE



PROFILE OF "TYPICAL" INSTITUTE  
(CONTINUED)

---

- \* LIMITED INDUSTRY SPECIALITY
- \* LIMITED EDP SKILLS
- \* HIGH BACKLOG OF WORK
- \* LIMITED INSTALLATION WORK
- \* NO FORMALIZED LONG RANGE PLANS
  - GOALS / MARKET
  - PEOPLE
  - SKILLS
  - RESEARCH
- \* INTERNAL CONSULTANCY GROUPS GENERALLY  
FUNCTION AS A PROFESSIONAL SERVICE  
ORGANIZATION WITHIN THEIR ENTERPRISES



## RELATED OPPORTUNITIES / RISKS

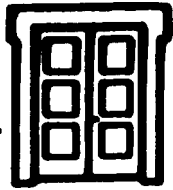
---

- \* DEVELOPING ECONOMY,  
DEVELOPING ENVIRONMENT,  
DEVELOPING OPPORTUNITIES
  
- \* LENGTHY DECISION MAKING PROCESS -  
IMPORTANT ROLE OF WORKERS' COUNCIL
  
- \* LAW ON ASSOCIATED LABOR ESTABLISHES  
FRAME FOR FUTURE WORK
  
- \* DEVELOPING COUNTRIES -- JUGOSLAVIA'S ROLE
  
- \* IMAGE COULD BE BETTER  
TOO MUCH "STUDY" ORIENTED



RELATED OPPORTUNITIES , RISKS

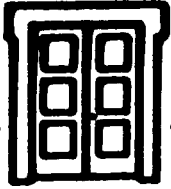
- \* DEVELOPING ECONOMY,  
DEVELOPING ENVIRONMENT,  
DEVELOPING OPPORTUNITIES
- \* LENGTHY DECISION MAKING PROCESS -  
IMPORTANT ROLE OF WORKERS' COUNCIL
- \* UNION ASSOCIATED LABOR ESTABLISHES  
FRAME FOR FUTURE WORK
- \* DEVELOPING COUNTRIES -- JUGOSLAVIA'S ROLE
- \* IMAGE COULD BE BETTER  
TOO MUCH "STUDY" ORIENTED



RELATED OPPORTUNITIES / RISKS  
(CONTINUED)

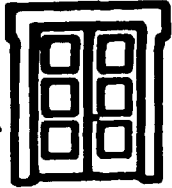
---

- \* SMALL / MEDIUM SIZE CLIENTS
  - NEED HELP
  
- \* LARGER ENTERPRISES
  - MAY BE GETTING AHEAD OF  
INSTITUTES IN SOME AREAS
  
- \* PROJECTS GETTING MORE COMPLEX --  
QUALITY RISKS, APPROACH, REQUIRES  
INSTALLATION ASSISTANCE



ACTION-AREAS -- CONSIDER

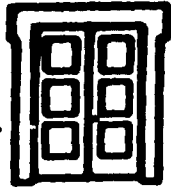
- \* ESTABLISH LONG RANGE PLANS
- \* INSTITUTE PROGRAMS FOR:
  - MORE YOUNGER INPUT
  - PERSONNEL EVALUATION
  - CAREER PATH PLANNING
- \* DEVELOP FORMAL / PLANNED TRAINING
  - BASIC SKILLS
  - UPGRADED SPECILITY SKILLS



ACTION-AREAS -- CONSIDER  
(CONTINUED)

- \* DEVELOP METHODOLOGY
  - JOB APPROACH
  - QUALITY ASSURANCE
  
- \* GIVE MORE ATTENTION TO EDP SKILLS  
LATER, SELECTIVE INDUSTRY SKILLS
  
- \* ESTABLISH ORGANIZED APPROACH  
TO PROMOTION AND IMAGE BUILDING





ACTION-AREAS -- CONSIDER  
(CONTINUED)

---

- FURTHER JOINT COLLABORATION THROUGH JUCOR

- \* TRAINING
- \* METHODS
- \* IMPROVE IMAGE OF PROFESSION
- \* PROMOTION / PROJECTS  
OUTSIDE JUGOSLAVIA
- \* RESEARCH-DEVELOPMENT
- \* APPLICATION SOFTWARE-DEVELOPMENT



ACTION AREAS -- CONSIDER  
(CONTINUED)

---

\* POSSIBLE NEW AREAS OF PRACTICE, I.E.

- IP AND INTEGRATED SYSTEMS
- CLIENT TRAINING
- PERFORMANCE MEASURES
- INCOME DISTRIBUTION AND REPORTING
- OPERATIONAL AUDITING AND MERGERS
- CONSTRUCTION PROJECT MANAGEMENT SYSTEMS
- ETC.

ARTHUR ANDERSEN & CO.

69 WEST WASHINGTON STREET  
CHICAGO, ILLINOIS 60602  
(312) 346-6262

March 31, 1978

Mr. Jaime Renart  
United Nations Development Programme  
P. O. Box 644  
11000 Belgrade/Yugoslavia

Subject: UNIDO Contract 77/81  
Project No. DP/YUG/75/021  
Activity Code 10 23 31-4

Dear Mr. Renart:

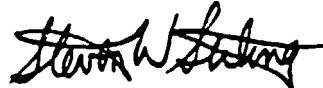
This letter and attachments are provided to document the field missions conducted in Yugoslavia during January and February, 1978, by Messrs. Ronald N. Flores, John D. Smith and Steven W. Stiling, of Arthur Andersen & Co., as part of the seminar on Industrial Project Implementation.

In brief, two introductory courses were conducted, one in Belgrade and the other in Ljubljana, as preparation for the seminar to be held in St. Charles, Illinois, USA, during the weeks of April 10 and April 17, 1978. The attached Progress Memorandum more fully describes the activities performed in the Project Area (Yugoslavia).

We are now completing the preparation for the group training session and are looking forward to the time when you can visit our training facility in St. Charles.

If you should have any questions, please contact us.

Very truly yours,



Steven W. Stiling

DLM

Attachments

ARTHUR ANDERSEN & Co.

Mr. Jaime Renart

-2-

March 31, 1978

Copies to: Mr. L. Milosavljević  
Institute for Chemistry, Technology and  
Metallurgy

Mr. M. Nikoletić  
Institut Za Ekonomiku Industrije

Mr. D. F. Mant  
Mr. K. Moll  
United Nations Industrial Development  
Organization

Mr. Ronald N. Flores, Hamburg  
Mr. John D. Smith, Chicago  
Mr. Walter Tenz, Zurich

INDUSTRIAL PROJECT IMPLEMENTATION

FIELD MISSION

PROGRESS MEMORANDUM

Objective And  
Scope

The objective of the Industrial Project Implementation Field Mission (Field Mission) was to assess the Yugoslav industrial and consulting environment and, in so doing, establish the link between our experience and the Yugoslav environment, so that the subsequent group training to be given in St. Charles, Illinois, USA, during the weeks of April 10 and April 17, 1978, will focus on relevant issues.

The scope of our Field Mission included two introductory courses and panel discussions, in addition to company visits. The first week-long course was conducted in Belgrade during the week of January 29, 1978, and the second course was held in Ljubljana during the week of February 5, 1978. Case studies from both the United States and Yugoslavia were presented and served as the basis for the discussions.

Assessment of Yugoslav  
Environment

We noted that there are many similarities between our approach to project control and the approach used in Yugoslavia. These similarities exist in the project organization, as well as the techniques used to control key project activities. The "owner" in our environment assumes the same risks as the "investor" in Yugoslavia and there are "project management" enterprises in both countries.

The case examples discussed during our Field Mission proved to be very helpful in highlighting similarities between our experience and the experience of the Yugoslav consultants.

Introductory Course Content  
and Case Discussions

Our introductory course on  
Construction Project

Management Systems (CPMS) established a basic frame of reference and understanding in the subject area and will be expanded in the group training session to include topics on the definition, organization and conduct of consulting assignments in Industrial Project Implementation.

The general topics covered in our introductory course are described in Attachment 1. Discussion was encouraged throughout the course and reference material was distributed to the participants. Copies of the reference material are included in this memorandum as Attachments 2--8. Lists of the participants for the Belgrade and Ljubljana workshops are included as Attachments 9 and 10.

Group Training  
Preparation

We are now proceeding with Phase 2 of the Industrial Project Implementation training package, which is the preparation for the group training to be held at our Center for Professional Development in St. Charles, Illinois. In addition to lectures and group discussions, this training will include case problems, company visits and self-study. Copies of visual aids in the English

language will be distributed to each participant to serve as a reference guide.

CONSTRUCTION PROJECT MANAGEMENT SYSTEMS

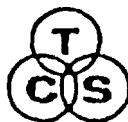
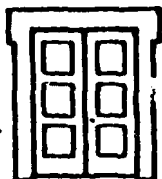
INTRODUCTORY COURSE TOPICS

- I. General Introduction of Terms and the Consultant's Role
  - . "Milestone" activity reporting, project work breakdown structures, and other key concepts.
  - . Various ways the consultant can fit into the project organization.
  
- II. Problems in Managing Industrial Project Implementation Efforts
  - . Changing conditions in the environment.
  - . Interrelationship of Cost, Technical, and Schedule systems.
  
- III. Conceptual Plan for Controlling Industrial Project Implementation Efforts
  - . Planning chart with sixteen control modules.
  
- IV. Key Controls from an Investor/Enterprise Manager Point of View
  - . Resource planning, project administration, and management reporting.
  - . Focus on early identification of cost overruns and schedule slippage.
  
- V. Risk Analysis, Contract Agreement Types, and Selective Controls
  - . Application of controls consistent with identified risks.
  
- VI. Marketing the Expertise
  - . Identification of potential clients
  - . Direct and indirect planning approaches.

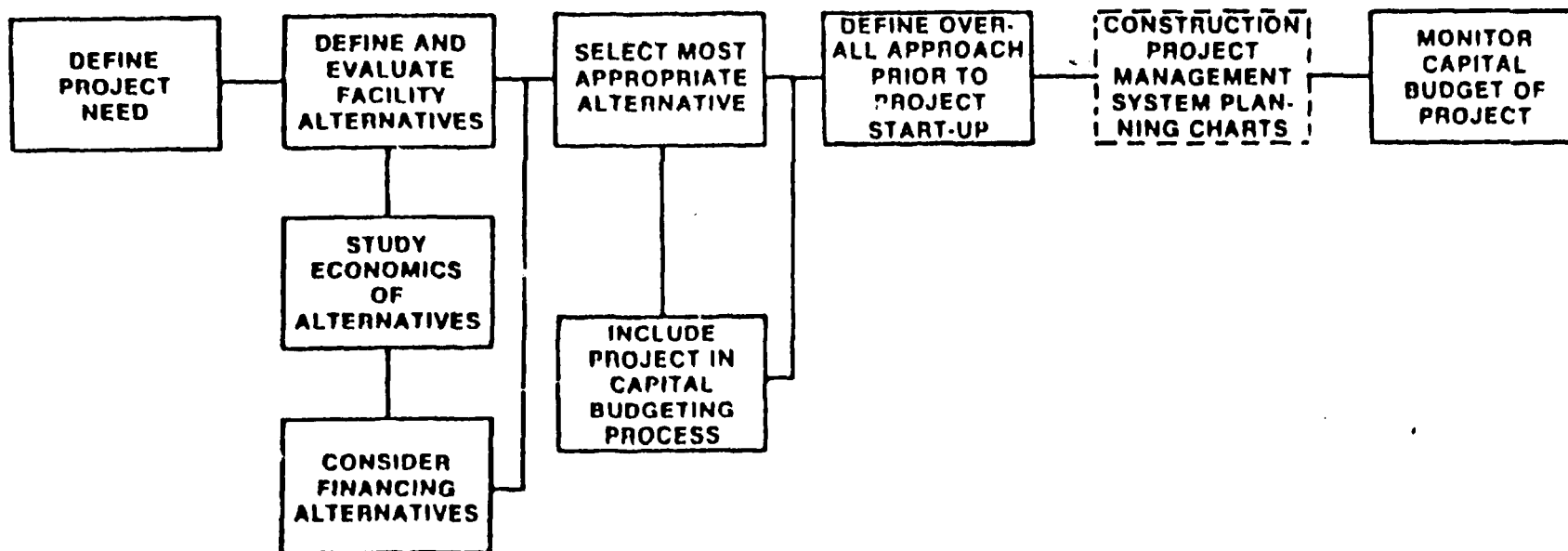


VII. Case Studies

- . Project control techniques for an owner/investor.
- . Comprehensive system design and installation.
- . Developing country project.

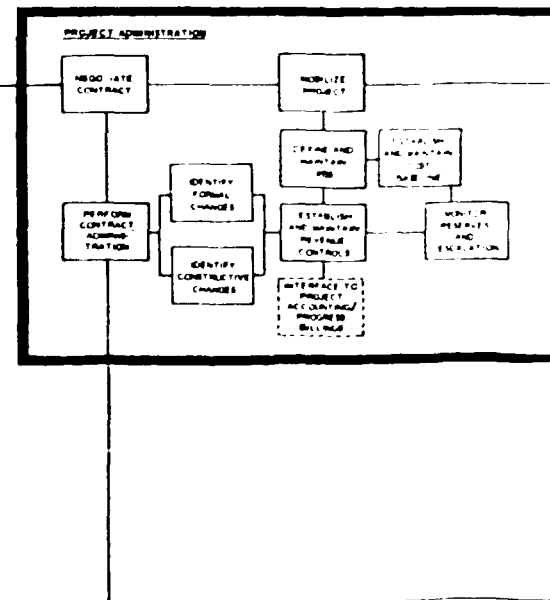
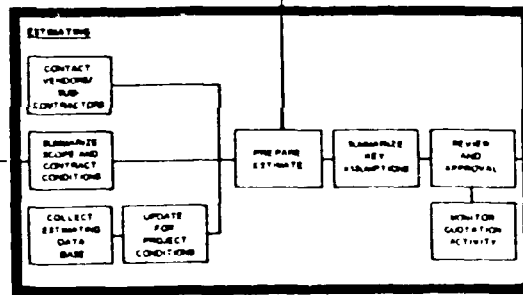
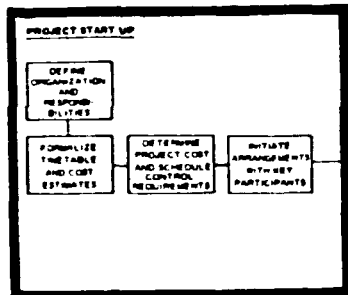
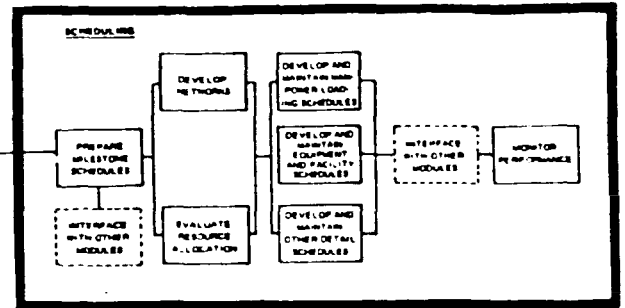
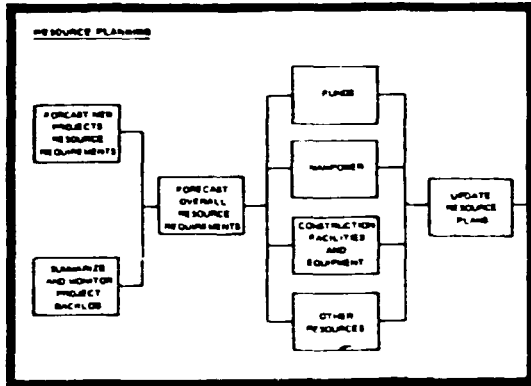


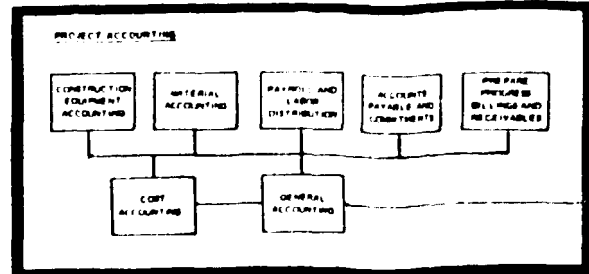
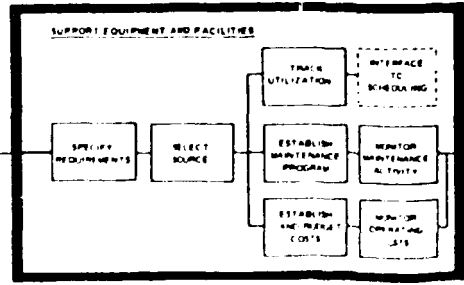
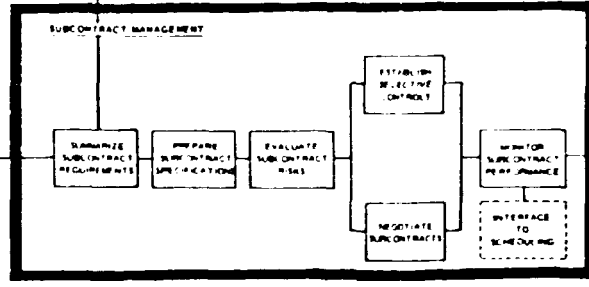
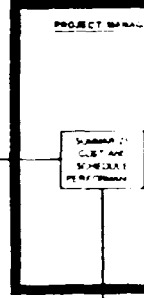
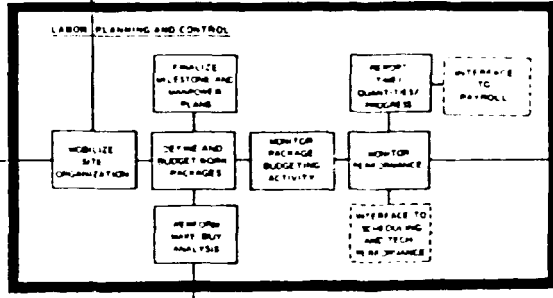
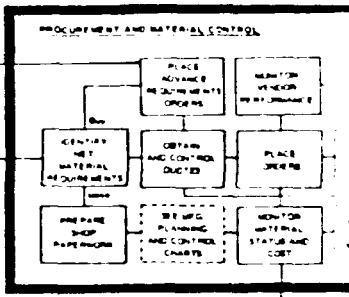
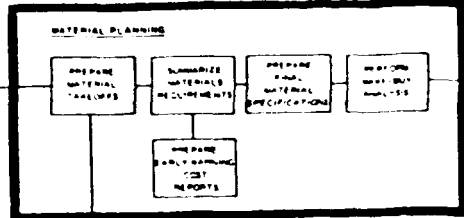
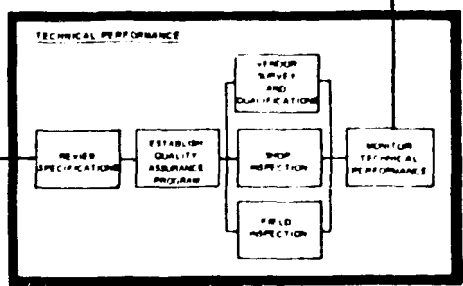
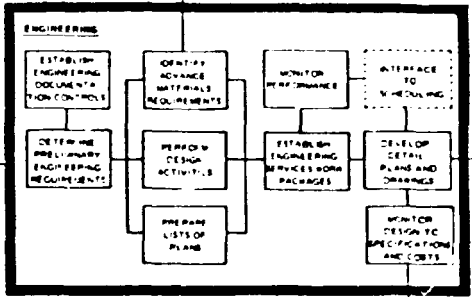
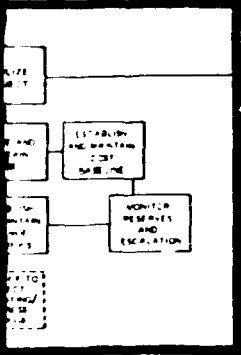
PROJECT SELECTION AND DEFINITION PROCESS



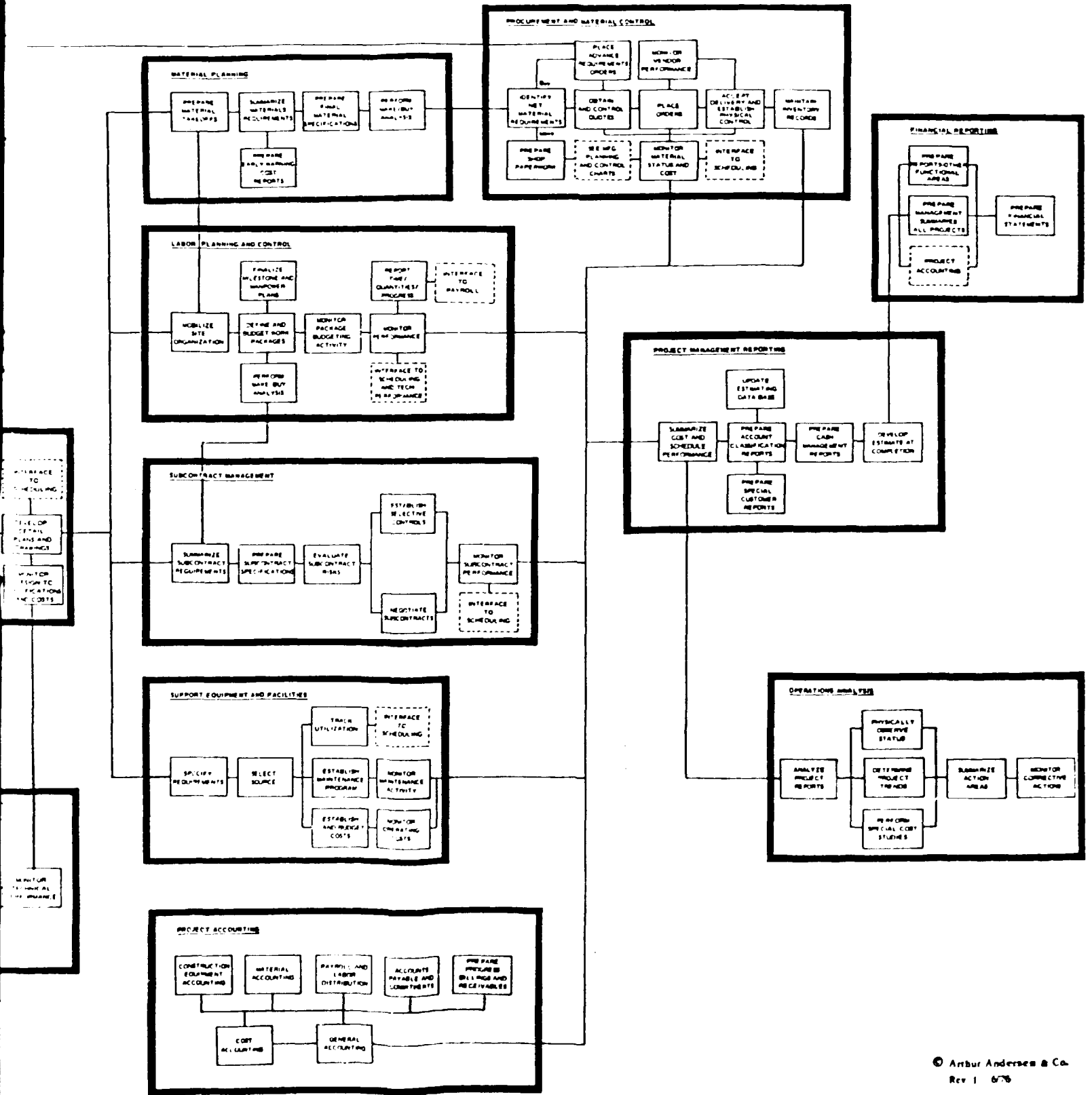
# ARTHUR ANDERSEN & Co.

## PLANNING CHART FOR CONSTRUCTION PROJECT MANAGEMENT SYSTEMS

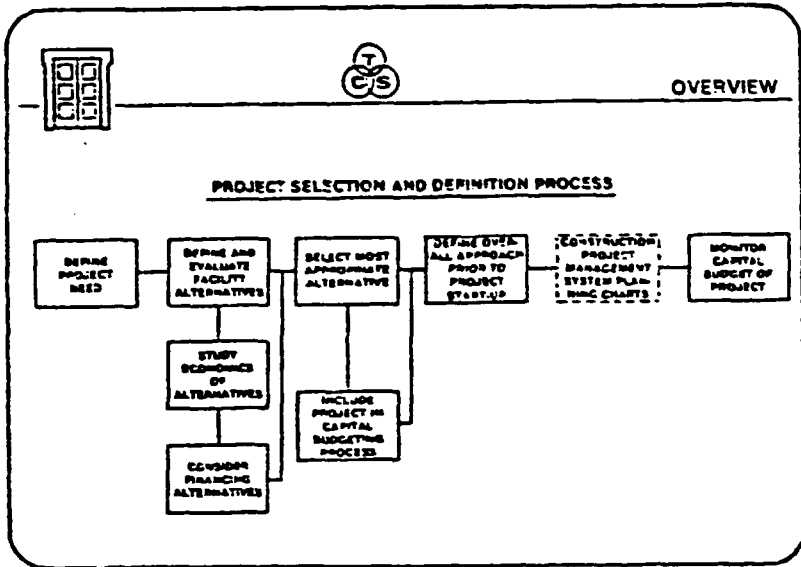




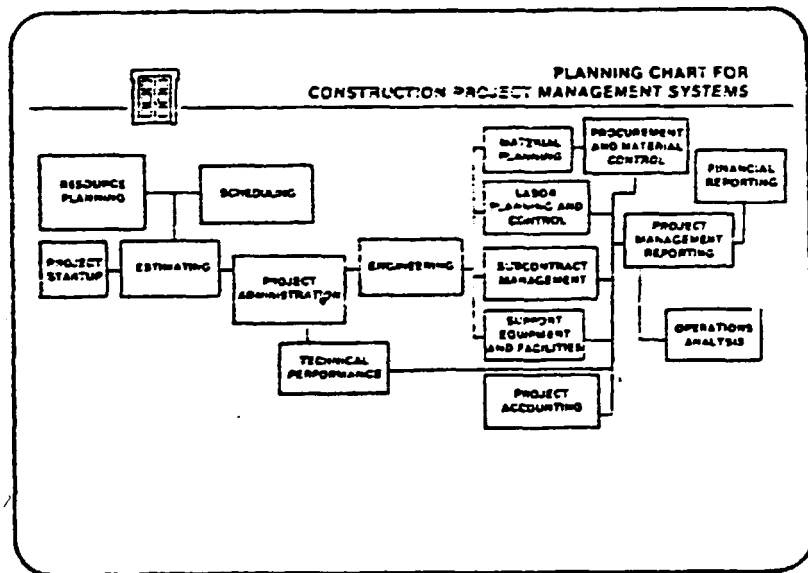
SECTION 2



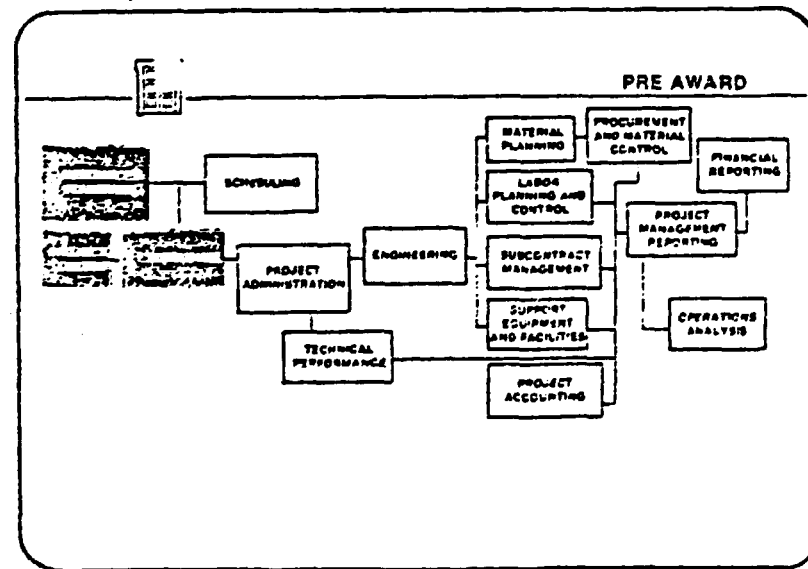
NOTES



1

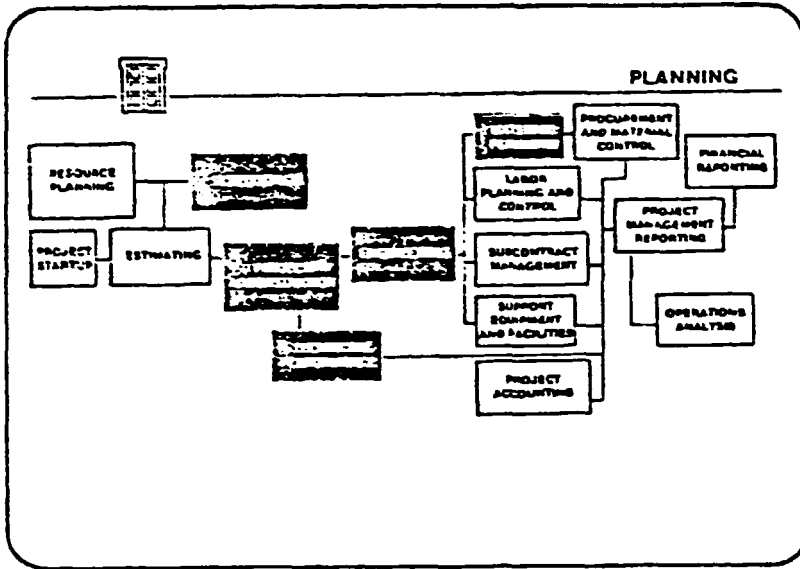


2

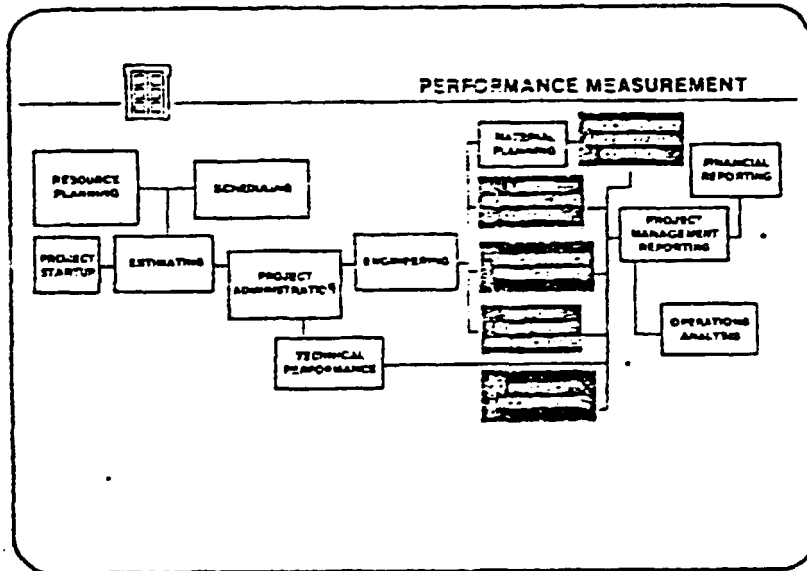


3

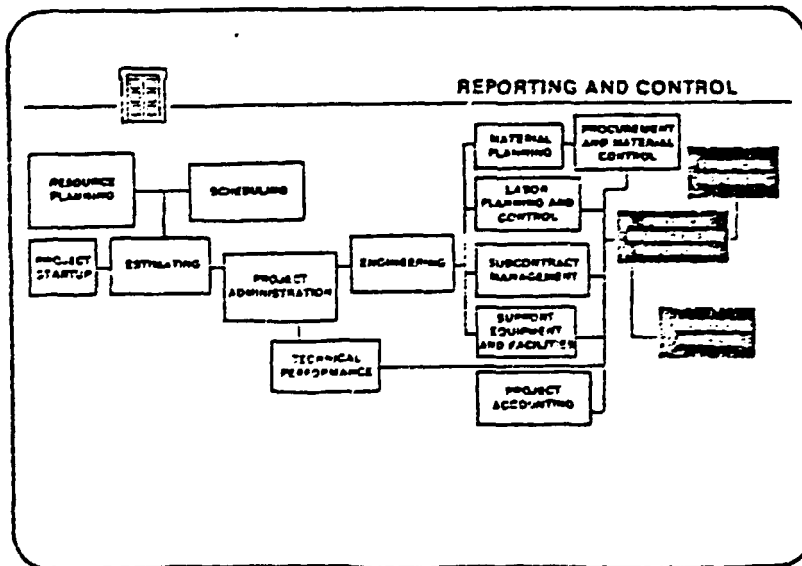
NOTES



4



5



6

NOTES



KEY PROJECT  
 CONTROL CONCEPTS

- Clear definition of responsibilities
- Early warning of potential problems
- Baseline responsibility reporting
- Change order controls

7

DEFINITION OF RESPONSIBILITIES

RESPONSIBILITY MATRIX

FUNCTION/ACTIVITY	OWNER	PROJECT MANAGER				CONTRACTOR
<b>SCHEDULING</b>	X		X			
			X	X		X
			X			X
<b>ESTIMATING</b>			X	X		X

8

EARLY WARNING

- Work breakdown structure
  - Way work performed/not way bid
- Estimating methods
  - Construction take-offs
  - Assumptions documented
- Procurement controls
  - Quantity controls
  - Defined responsibilities
  - Defined status points
  - Integrated reporting
  - Exception reporting
  - Processing controls

9



NOTES

### EARLY WARNING

- Scheduling controls
  - Defined responsibilities
  - Proper level of detail/summary data
  - Sound progressing
  - Integrated reporting
  - Exception reporting
  - Processing controls
- Field labor controls (reimbursable contracts)
  - Based upon construction take-offs
  - Sound progressing
  - Productivity measurement
  - Integrated reporting
  - Exception reporting
  - Processing controls

10

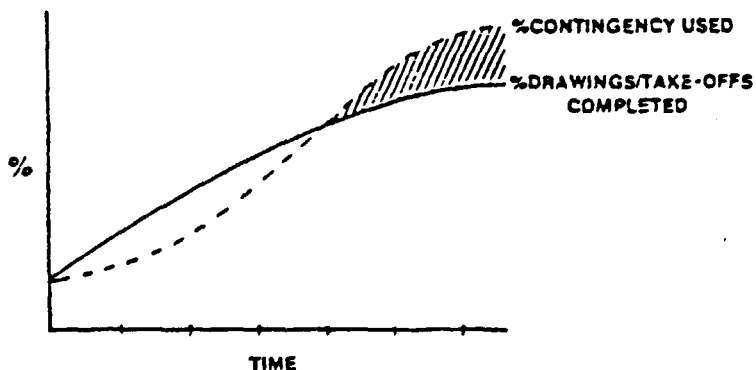
### EARLY WARNING

- Control of management reserves
  - Base upon risks
  - Define logically
  - Make visible
  - Control establishment
  - Monitor rate of use
  - Evaluate status/adequacy

11

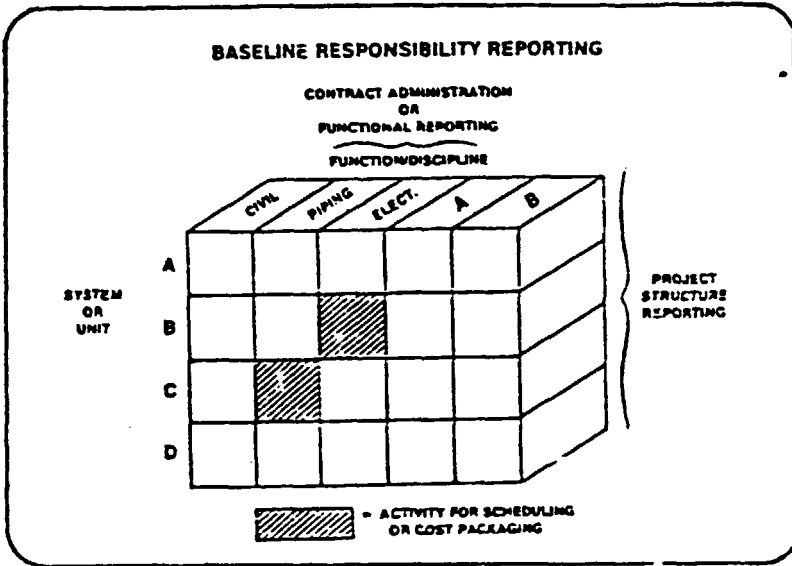
### EARLY WARNING

#### RESERVE USAGE MONITORING



12

NOTES



13

**BASELINE RESPONSIBILITY REPORTING**

PIPING SUMMARY                      FUNCTIONAL STRUCTURE REPORTING

FUNCTION/AREA	TYPE	AUTH. BUDGET	COMMTD	EXPEND	EAC	VARIANCE
CONTRACT A						
CONTRACT B						
CONTRACT C						
CONTRACT D						

14

**BASELINE RESPONSIBILITY REPORTING**

SUPERVISOR X — X                      PROJECT STRUCTURE REPORTING

FUNCTION/AREA	AUTH. BUDGET	COMMTD	EXPEND	EAC	VARIANCE
<b>UNIT A</b>					
<b>AREA 1</b>					
CONCRETE STRUCT.					
VESSELS/EQUIP.					
PIPING					
ELECTRICAL					
INSTRUMENT.					
SUBTOTAL					
<b>AREA 2</b>					
<b>TOTAL UNIT A</b>					

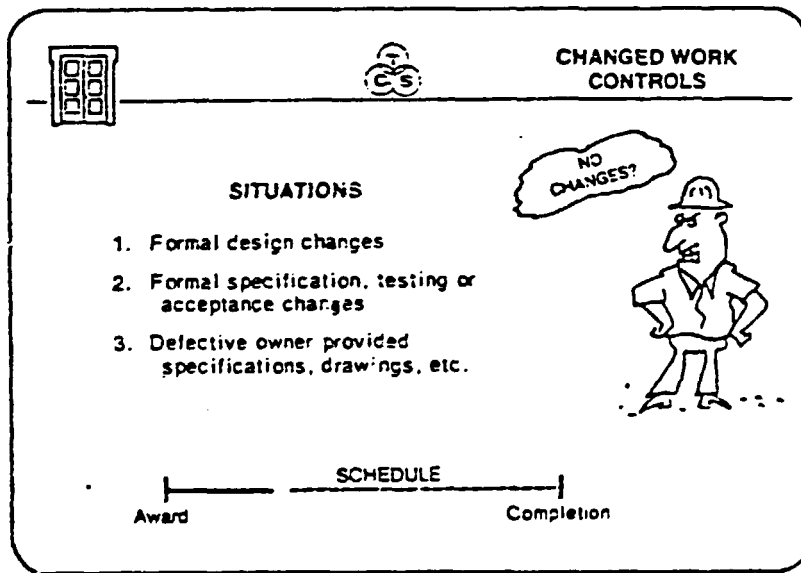
15

## BASELINE RESPONSIBILITY REPORTING

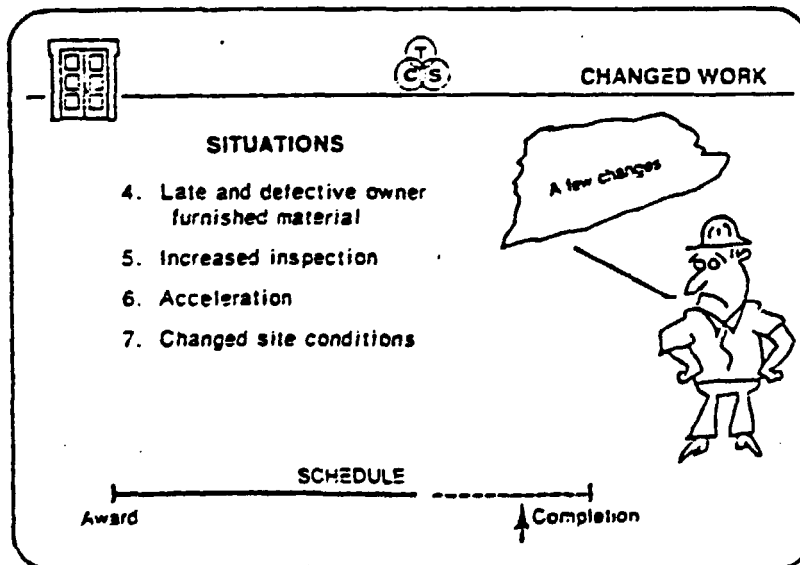
- Responsibility oriented
  - e.g. by contract
  - by craft
  - by unit/area
- Level-by-level summarization
- Consistent project vs. function totals
- Fixed base line
- Construction vs. design estimate if appropriate
- Expenditures vs. commitments
- EAC methodology critical
- Variance isolation
- Costs or hours (quantities)

16

NOTES





17



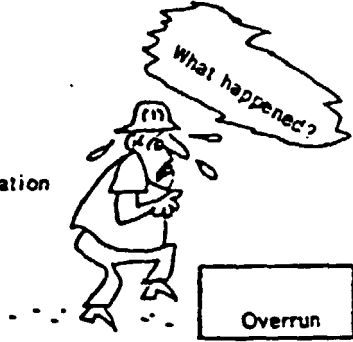
18

NOTES

  **CHANGED WORK**

**SITUATIONS**



- 8. Suspensions of work
- 9. Restriction of work method
- 10. Incorrect contract interpretation
- 11. Others

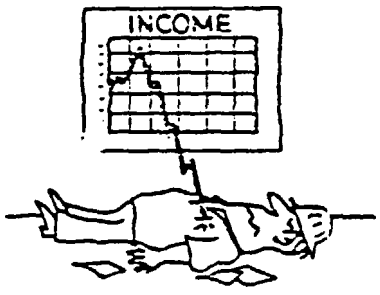


**SCHEDULE**

Award ↑ Completion


19

  **TYPICAL RESULTS**



**INCOME**  
**CASH FLOW**  
**QUALITY**  
**SCHEDULE**

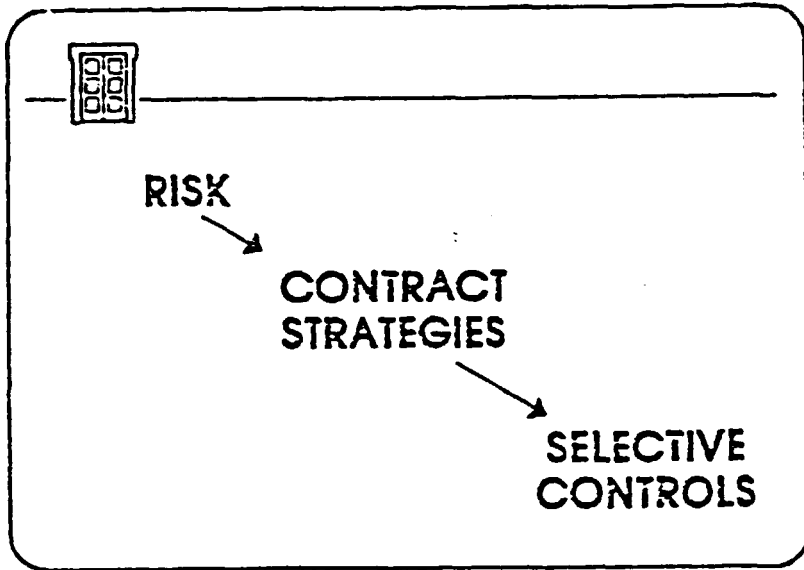
20

 **CHECKLIST OF OWNER INVOLVEMENT**

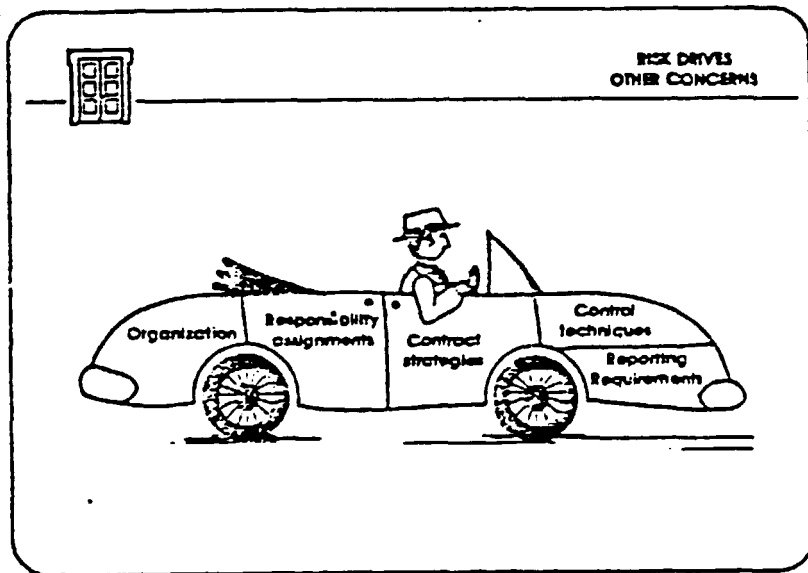
- Establish internal group the responsibility for the project
- Insist on design phase and periodic re-estimates based on more complete plant design
- Perform risk assessment and develop appropriate contract strategies
- Implement project control selectively
- Ensure quality and reliability of control systems proposed by other organizations in the project

21

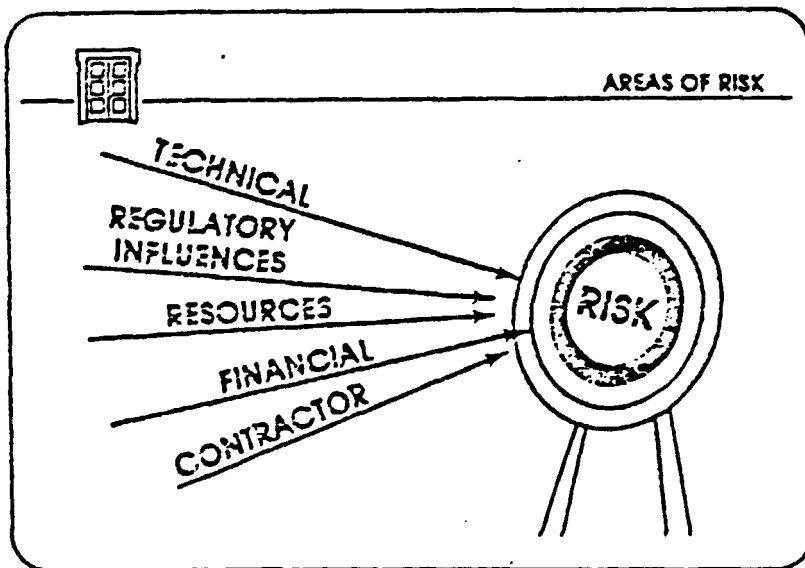
NOTES



1

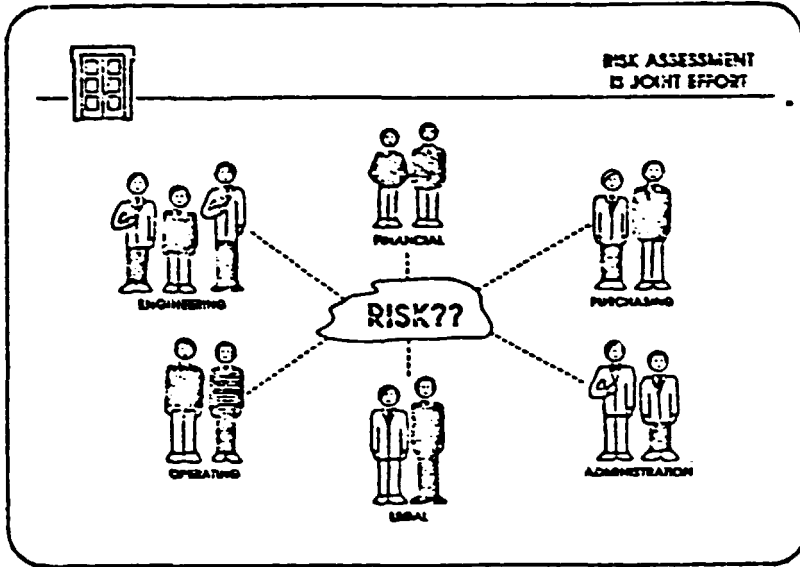


2

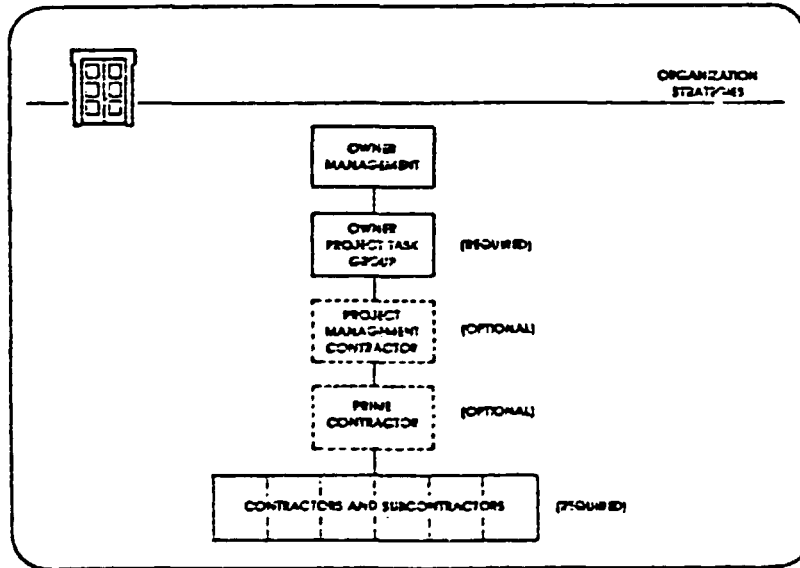


3

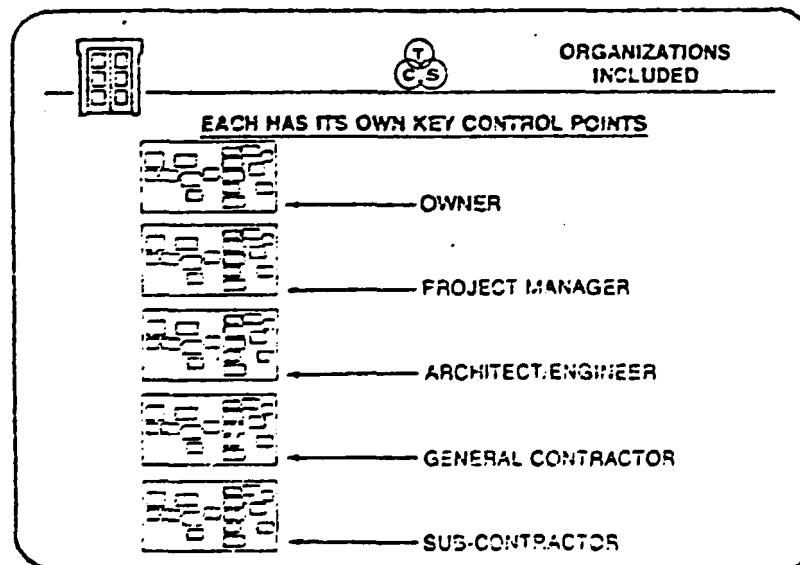
NOTES



4



5



6

NOTES

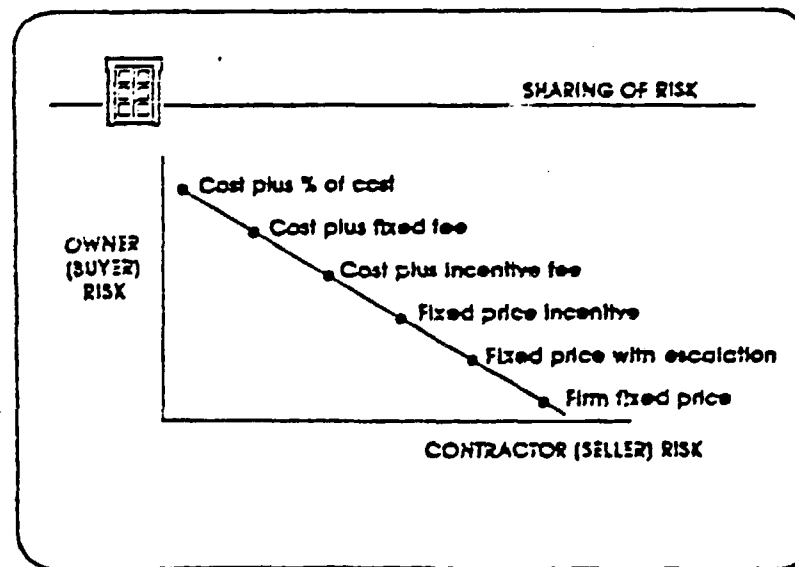
**DEFINITION OF RESPONSIBILITIES**  
RESPONSIBILITY MATRIX

FUNCTION/ACTIVITY	OWNER	PROJECT MANAGER	CONTRACTOR
<b>SCHEDULING</b>	X	X	
<i>baseline</i>		X	X
<i>update</i>		X	X
<b>ESTIMATING</b>		X	X
<i>baseline</i>		X	X

7

- ESTIMATE UNCERTAINTIES**
- Completeness of specifications
  - Length of project
  - Available sources of supply
  - Competition
  - Type of product or end item

8



9

NOTES



FIRM  
FIXED PRICE

- Established price
- Changes and extras
- Impact of inflation
- Variations

10



FIXED PRICE  
VARIATIONS

- Unit prices
- Escalation
- Incentives
- Pro's and con's

11




COST  
REIMBURSABLE

- No fee
- Cost sharing
- Cost plus incentive fee
- Cost plus award fee
- Cost plus fixed fee
- Time and materials
- Cost plus a % of cost

12



NOTES


INCENTIVES

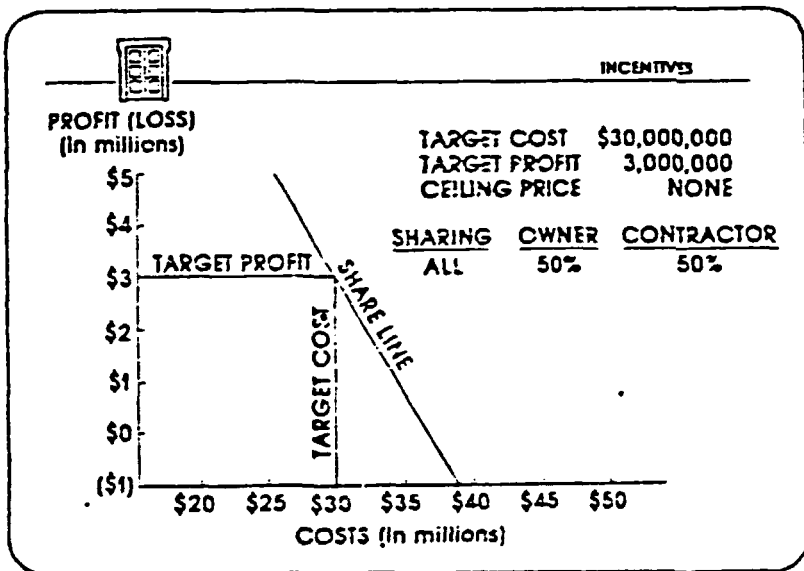
---

**+ COST**  
**+ TECHNICAL**  
**+ DELIVERY (SCHEDULE)**  

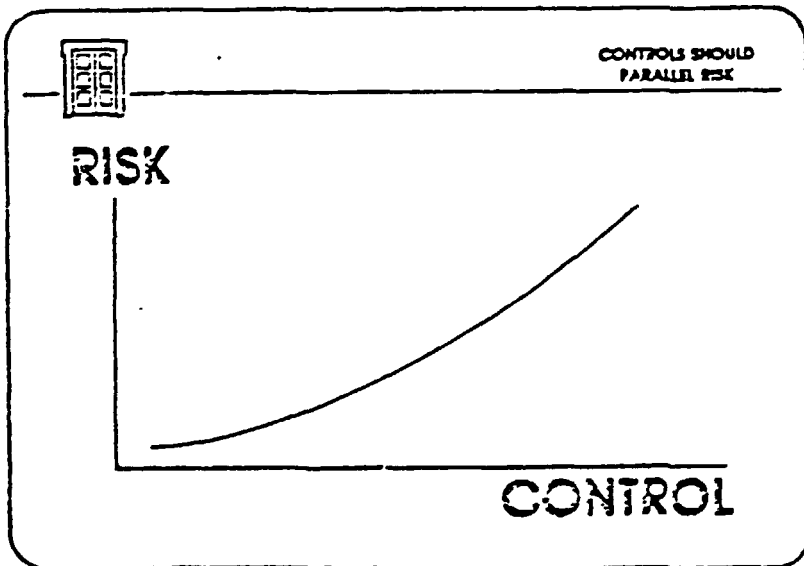

---

**= PROFIT**

13

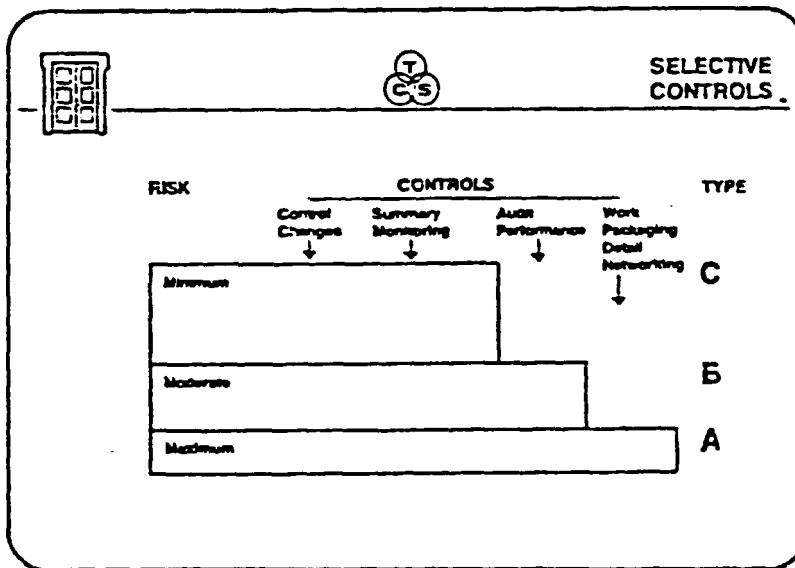


14

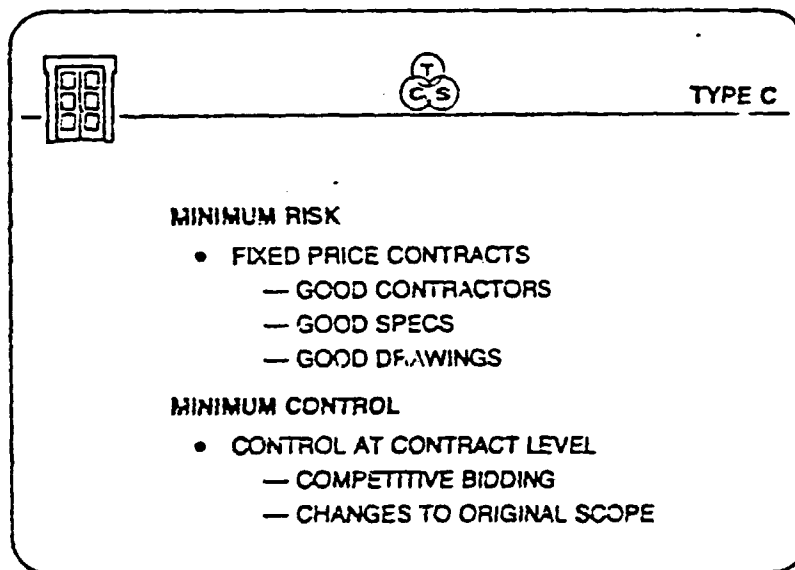


15

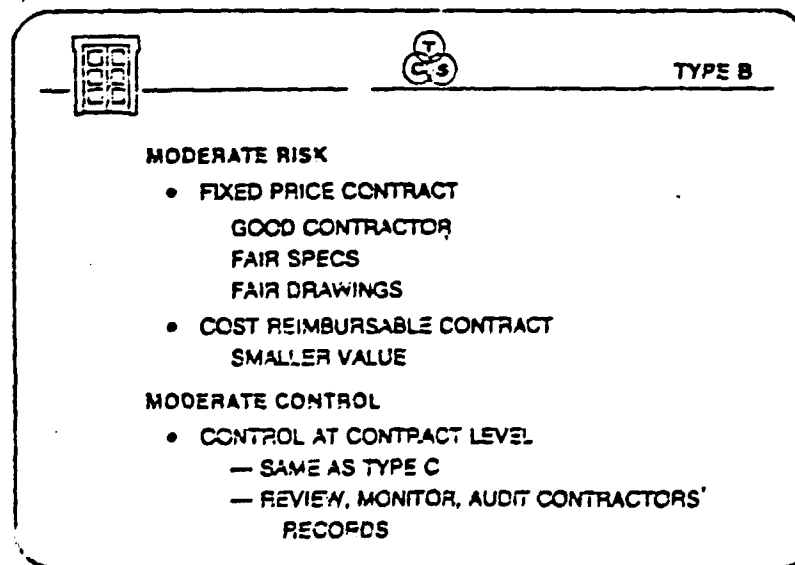
NOTES





16



17



18

  **TYPE A**


**HIGHEST RISK**

- **COST REIMBURSABLE**  
HIGH VALUE
- **FIXED PRICE**  
NEW CONTRACTOR  
HIGH VALUE  
HIGH LEVEL OF CHANGE

**HIGHEST CONTROLS**

- **SAME AS TYPE B**
- **BREAK WORK INTO DETAIL ELEMENTS  
AND AUDIT DETAIL REPORTS**

19

 **SUMMARY**

- **Assess risk**
- **Establish organization approach**
- **Define responsibilities**
- **Define/implement contracting strategies**
- **Define/implement selective project controls**


20

NOTES

# INDUSTRIAL PROJECT IMPLEMENTATION

## PROJECT CONTROL TECHNIQUES FOR OWNER

Auto/Visual 78-042B




**INDUSTRIAL PROJECT IMPLEMENTATION**

### CASE EXAMPLE

**PROJECT CONTROL TECHNIQUES FOR OWNER**

1

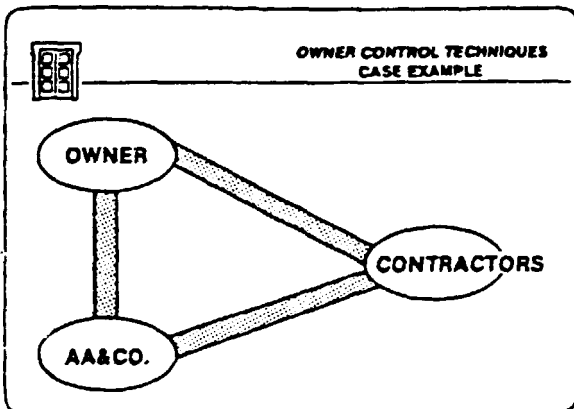


**OWNER CONTROL TECHNIQUES CASE EXAMPLE**


### OVERVIEW

- LOCATION — UNITED STATES
- INDUSTRY — ENERGY
- MAGNITUDE — MATERIALS \$300 MILLION  
LABOR \$200 MILLION
- FIELD CONSTRUCTION — 1½ YEARS
- CONTRACTOR — OWNER SERVED AS CONSTRUCTION MANAGER

2



3




**OWNER CONTROL TECHNIQUES CASE EXAMPLE**

### ENGAGEMENT OBJECTIVES

- DEVELOP PROJECT CONTROL TECHNIQUES
  - DESIGN
  - CONSTRUCTION
- REVIEW RESPONSIBILITIES AND ASSIGNMENTS
  - REVISE AS NECESSARY
- CONDUCT TRAINING SESSIONS
- DEVELOP REPORTING REQUIREMENTS

4




**OWNER CONTROL TECHNIQUES CASE EXAMPLE**

### TRAINING SESSIONS

- CONTRACT RISK ANALYSIS
- SELECTIVE CONTRACT CONTROLS
- COST ESTIMATING
- ARCHITECT — ENGINEER CONTROL
- SCHEDULE PLANNING AND CONTROL
- PROJECT COST RESERVES

5



**DESIGN AND INSTALLATION CASE EXAMPLE**

### ENGAGEMENT SUMMARY

**BENEFITS TO OWNER**

- MORE CONFIDENCE IN PROJECT MANAGER TO MONITOR PROJECT
- IMPROVED TRANSPORTATION FACILITIES

**BENEFITS TO PROJECT MANAGER**

- COMPLETE PROJECT WITHIN CONTRACT TERMS
- CONTINUITY OF OPERATIONS

**BENEFITS TO AA&CO.**

- EXPOSURE TO SEVERAL PROJECT PARTICIPANTS
- SOFTWARE EVALUATIONS
- PRACTICE DEVELOPMENT

6

# INDUSTRIAL PROJECT IMPLEMENTATION

## COMPREHENSIVE DESIGN AND INSTALLATION ENGAGEMENT

Audio/Visual 78-042C

**INDUSTRIAL PROJECT  
IMPLEMENTATION**

### CASE EXAMPLE

**COMPREHENSIVE DESIGN AND  
INSTALLATION ENGAGEMENT**

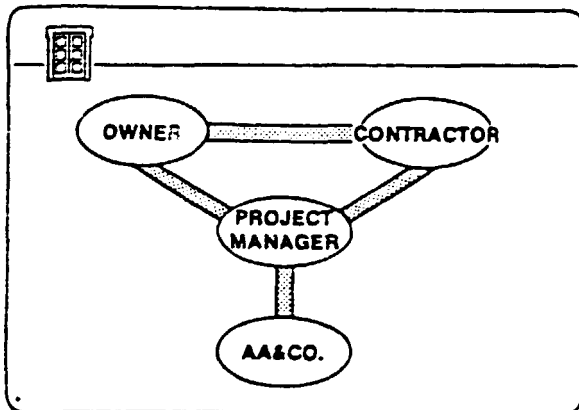
1

**DESIGN AND INSTALLATION  
CASE EXAMPLE**

### OVERVIEW

- LOCATION — UNITED STATES
- INDUSTRY — TRANSPORTATION
- MAGNITUDE — MATERIALS \$ .9 BILLION  
LABOR \$1.1 BILLION
- FIELD CONSTRUCTION — 5 YEARS
- CONTRACTOR — GENERAL ENGINEERING/  
CONSTRUCTION MANAGER

2



3

**DESIGN AND INSTALLATION  
CASE EXAMPLE**

### ENGAGEMENT OBJECTIVES

- ESTABLISH PROJECT MANAGEMENT OFFICE
  - DEVELOP FUNCTIONS, RESPONSIBILITIES  
AND INTERFACES
- DESIGN AND IMPLEMENT SYSTEMS  
AND PROCEDURES
  - PROJECT ACCOUNTING
  - NEW CONSTRUCTION
  - MAINTENANCE
  - MANAGEMENT REPORTING
- FOLLOW-UP AND MONITOR PROGRESS
  - ANALYZE REPORTS
  - OPERATIONAL AUDIT

4

**DESIGN AND INSTALLATION  
CASE EXAMPLE**

### ENGAGEMENT SCOPE

- 45 WORK-YEARS
- 25 CALENDAR MONTHS
- PERSONNEL
  - 3 PARTNERS
  - 6 MANAGERS
  - 10 SENIOR ANALYSTS
  - 15 PROGRAMMERS
- 6 AA&CO. OFFICES
  - UNITED STATES
  - OVERSEAS

5

**DESIGN AND IMPLEMENTATION  
CASE EXAMPLE**

### DOCUMENTATION

- RESPONSIBILITY MATRIX
  - MISSIONS AND FUNCTIONS
- SYSTEM REQUIREMENTS DEFINITION
- SOFTWARE EVALUATIONS
  - PROJECT ACCOUNTING
  - SCHEDULING
- PROCEDURES MANUALS
- CONTRACTS AND CHANGE CONTROL TRAINING
- MANAGEMENT REPORTS PACKAGE

6

# INDUSTRIAL PROJECT IMPLEMENTATION DEVELOPING COUNTRY PROJECT

Audio/Visual 78-042A

**INDUSTRIAL PROJECT  
IMPLEMENTATION**

**CASE EXAMPLE**

**DEVELOPING COUNTRY  
PROJECT**

1

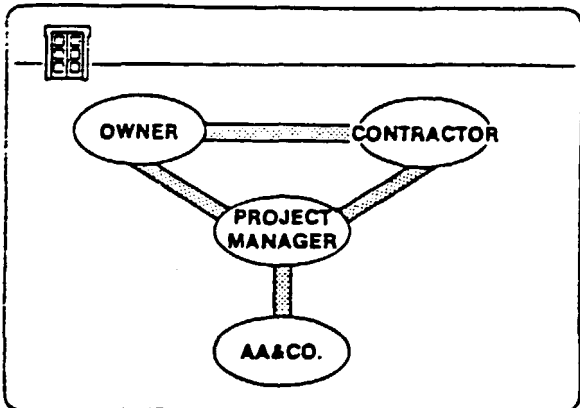
**DEVELOPING COUNTRY  
CASE EXAMPLE**

**OVERVIEW**

- LOCATION — MIDDLE EAST
- INDUSTRY — OIL REFINERIES
- MAGNITUDE — MATERIALS \$800 MILLION  
LABOR \$700 MILLION
- FIELD CONSTRUCTION — 3 YEARS
- CONTRACTOR — LARGE INTERNATIONAL  
CONSTRUCTION FIRM

2

Audio/Visual 78-042C



3

**DEVELOPING COUNTRY  
CASE EXAMPLE**

**ENGAGEMENT OBJECTIVES**

- EVALUATE CONTRACTOR'S SYSTEMS
  - SCHEDULING
  - PROGRESS MEASUREMENT
  - COSTS
- DETERMINE ADEQUACY OF SYSTEMS FOR
  - CONTROL BY CONTRACTOR
  - MONITORING BY PROJECT MANAGER
  - REPORTING TO OWNER
- RECOMMEND IMPROVEMENTS

4

**DEVELOPING COUNTRY  
CASE EXAMPLE**

**ENGAGEMENT APPROACH**

- PRESENTATION TO PROJECT MANAGER
- PREPARATION FOR REVIEW AT CONTRACTOR
- FIELD REVIEW OF CONTRACTOR SYSTEMS
- REPORT OF FINDINGS AND RECOMMENDATIONS
- OUTLINE FOR CONSTRUCTION SITE VISIT

5

**DEVELOPING COUNTRY  
CASE EXAMPLE**

**PRESENTATION TO PROJECT MANAGER**

- INDUSTRY TRENDS AND PROBLEMS
- AA&CO. VIEW OF PROJECT MANAGEMENT SYSTEMS
- REPORTING REQUIREMENTS
  - SCHEDULES — LABOR
  - MATERIALS — RESERVES
- AA&CO. INDUSTRY EXPERIENCE
- PROJECT MANAGER'S NEED FOR ASSISTANCE
- AA&CO. ROLE AND RESPONSIBILITIES

6

# INDUSTRIAL PROJECT IMPLEMENTATION DEVELOPING COUNTRY PROJECT

Auto/Visual 78-042A

DEVELOPING COUNTRY CASE EXAMPLE	
PREPARATION FOR REVIEW AT CONTRACTOR	
TASK	WORK-DAYS
• REVIEW CURRENT DOCUMENTATION	5
— CONTRACTS	
— PROCEDURES	
— ENGINEERING ESTIMATES	
— WORK BREAKDOWN STRUCTURE (WBS)	
• PREPARE COST AND SCHEDULE CONTROL SYSTEMS CHECKLISTS	5
• PREPARE DETAILED WORK PROGRAM	3
<b>TOTAL</b>	<b>13</b>

7

DEVELOPING COUNTRY CASE EXAMPLE	
FIELD REVIEW OF CONTRACTOR SYSTEMS	
TASK	WORK-DAYS
• REVIEW CONTRACTOR ORGANIZATION	2
• REVIEW SCHEDULING SYSTEM	5
— TYPES AND RELATIONSHIPS OF SCHEDULES	
— ACTIVITY AND RESOURCE DEFINITION	
— RELATION TO COST SYSTEM	
— MILESTONE AND EXCEPTION REPORTING	
• REVIEW PROGRESS MEASUREMENT TECHNIQUES	3
— METHODS REPRESENT ACTUAL PROGRESS	

8

DEVELOPING COUNTRY CASE EXAMPLE	
FIELD REVIEW OF CONTRACTOR SYSTEMS (CONT'D.)	
TASK	WORK-DAYS
• REVIEW COST CONTROL SYSTEM	6
— ESTIMATING METHODS	
— REPORTING OF ACTUAL HOURS AND COSTS	
— PRODUCTIVITY REPORTING	
— WORK PACKAGING	
— ESTIMATE AT COMPLETION (EAC)	
• RECOMMEND IMPROVEMENTS TO CONTRACTOR	5
• ISSUE FINAL REPORT TO PROJECT MANAGER	6
<b>TOTAL</b>	<b>27</b>

9

DEVELOPING COUNTRY CASE EXAMPLE			
SCHEDULING — FINDINGS			
SCHEDULE TYPES	FORMAT	USE FOR	
		PLANNING	CONTROL
• MASTER	BARCHART	X	
• SUMMARY (COMPUTER)	CPM	X	
• INTERMEDIATE	BARCHART	X	
• DETAIL (COMPUTER)	LIST	X	X
• WEEKLY	BARCHART	X	X
• RESOURCE REQUIREMENTS	BARCHART	X	
• SPECIALIZED	BARCHART	X	X

10

DEVELOPING COUNTRY CASE EXAMPLE	
SCHEDULING — RECOMMENDATIONS	
<b>PLANNING</b>	
• ADEQUATE APPROACH	
• DEVELOP LESS CUMBERSOME FORMAT FOR REPLANNING	
<b>CONTROL</b>	
• INADEQUATE	
• IMPLEMENT INTERMEDIATE COMPUTER CPM	
• AUTOMATE INTERFACE FROM DETAIL TO INTERMEDIATE	
• UTILIZE CPM RESOURCE CONSTRAINING	
• ESTABLISH MILESTONE AND EXCEPTION REPORTING	


11

DEVELOPING COUNTRY CASE EXAMPLE	
PROGRESS MEASUREMENT — FINDINGS	
• WORK BREAKDOWN STRUCTURE	
• MONTHLY PROGRESS REPORTING	
• MEASURING METHODS FOR KEY AREAS	
PIPING — NUMBER OF WELDS	
FOUNDATIONS — CUBIC METERS OF CONCRETE	

12

# INDUSTRIAL PROJECT IMPLEMENTATION DEVELOPING COUNTRY PROJECT


Audio/Visual 78-042A

 DEVELOPING COUNTRY  
CASE EXAMPLE

### PROGRESS MEASUREMENT -- RECOMMENDATIONS

- WORK BREAKDOWN STRUCTURE — ADEQUATE
- IMPROVE MEASURING METHODS FOR PIPING — WELDS FACTORED BY DIFFICULTY
- FOUNDATIONS — SQUARE METERS OF FORMWORK AND CUBIC METERS OF CONCRETE


13

 DEVELOPING COUNTRY  
CASE EXAMPLE

### COST CONTROL — FINDINGS

- PROJECT-TO-DATE DATA ONLY
- LABOR HOUR PRODUCTIVITY REPORT
- LABOR DOLLAR VARIANCE DUE TO WAGE RATES AND PRODUCTIVITY
- EAC AND CURRENT BUDGET REVISED TOGETHER
- INVENTORY CONTROL AND MATERIAL REPORTING
- SUMMARY PROJECT COST REPORT


14

 DEVELOPING COUNTRY  
CASE EXAMPLE

### COST CONTROL — RECOMMENDATIONS

- REPORT CURRENT PERIOD AND PROJECT-TO-DATE DATA
- CALCULATE SEPARATE PRODUCTIVITY AND RATE VARIANCES
- FOR EAC USE ESTIMATES FOR
  - PRODUCTIVITY
  - REMAINING WORK
  - WAGE RATES
- UTILIZE SEPARATE BUDGETS
  - ORIGINAL
  - APPROVED
  - CURRENT


15

 DEVELOPING COUNTRY  
CASE EXAMPLE

### OUTLINE FOR CONSTRUCTION SITE VISIT

1. DETERMINE WHETHER THE CONTRACTOR IMPLEMENTED THE RECOMMENDATIONS AS INTENDED AND ON A TIMELY BASIS
2. IDENTIFY AND REVIEW THE SYSTEMS AND METHODS BEING USED IN THE FIELD
3. EVALUATE THE PERSONNEL AS WELL AS THE SYSTEMS
4. REVIEW THE CONTROLS FOR THE COMPUTER SYSTEM

16

 DEVELOPING COUNTRY  
CASE EXAMPLE

### ENGAGEMENT SUMMARY


**BENEFITS TO CONTRACTOR**

- IMPROVED CONTROL SYSTEMS
- IMPROVED RELATIONSHIP WITH PROJECT MANAGER

**BENEFITS TO PROJECT MANAGER**

- BETTER UNDERSTANDING OF CONTRACTOR'S SYSTEMS WHICH ASSISTS IN MONITORING THE PROJECT
- IMPROVED RELATIONSHIP WITH CONTRACTOR

17

 DEVELOPING COUNTRY  
CASE EXAMPLE

### ENGAGEMENT SUMMARY (CONT'D.)

**BENEFITS TO OWNER**

- MORE CONFIDENCE IN CONTRACTOR'S CONTROL SYSTEMS
- MORE CONFIDENCE IN PROJECT MANAGER TO MONITOR PROJECT

**BENEFITS TO AA&CO.**

- GAINED RESPECT FROM OTHER PARTICIPANTS
- PRACTICE DEVELOPMENT

18



BELGRADE WORKSHOPPARTICIPANTS

<u>Name</u>	<u>Organization</u>
Bozidar Sisevie	Institut za drustveno ekonomska istraz.
Milos Gudurić	Savezni centar za organizaciju i usavrsavanje kadrova
Cedomir Dabić	Savezni centar za organizaciju i usavrsavanje kadrova
Milos Milijasević	Institut za organizaciju i razvoj--Organomatik
Sinisa D.Kalapasev	Savezni centar za organizaciju i usavrsavanje kadrova
Bogoljub Milivojević	Zavod za ekonomske ekspertize
Dragoljub Cosić	Inst.za org.i razv. Organomatik
Dragutin Radovanović	Inst.za org.i razv. Organomatik
Zoran Kosović	Ekonomski biro Marketing
Gradimir Stojanović	Organomatik
Zarko Mihajlović	Organomatik
Ratko Popović	Viskoza--OOUR Centar za hemijska vlak.
Franc Grims	ITEO
Mirko Todorović	Institut za ekonomiku industrije--IEI
Jelica Vujčić	IEI
Danko Djunić	IEI
Jelka Lekić	IEI
Slobodan Ostojić	IEI
Pavle Popović	IEI
Djordje Lajsić	IEI
Miodrag Andjelković	IEI

<u>Name</u>	<u>Organization</u>
Dorde Dlesk	Organomatik
Milisav Mkoletić	IEI
Dukic Braniskav	Viskoza
Milenko B. Gudić	IEI

LJUBLJANA WORKSHOPPARTICIPANTS

<u>Name</u>	<u>Organization</u>
Mirko Opara	"SMELT"
Maks Ferlan	"SMELT"
Muhamed Abdomerović	"ENERGOINVEST"
Marko Mutić	"ENERGOINVEST"
Mauro Bastijanić	"PRVOMAJSKA"
Tomislav Talijić	"PRVOMAJSKA"
Mato Tomakić	"PRVOMAJSKA"
Mladen Vucak	RMK ZENICA
Andrej Skarabot	Zavod SRS za produktivnost dela
Zdenko Zadaveć	"RADE KONCAR"
Josip Brumeć	"RADE KONCAR"
Franc Grims	ITEO
Dana Sodin	LJUBLJANSKA BANKA
Stevo Zuber	ZAVOD SRS ZA PRODUKTIVNOST DELA
Ervin A. Schwarzbartl	GRADIS
Stojan Cavić	Zavod za produktivnost
Berislav Boras	"Rade Koncar"
Petar Pravica	"RMK" ZENICA
Hugo Polajner	Zavod SRS za produktivnost dela
Marko Nemeć-Pecjak	"GIP" OBNOVA
Djuro Lukajić	RMK ZENICA
Viljem Nemeć	GOSPODARSKA ZBORNICA SLOVENIJE
Zoran Polić	LJUBLJANSKA BANKA
Branko Klander	GIP OBNOVA

ARTHUR ANDERSEN AG

Corporate Planning

TÖDISTRASSE 47, POSTFACH

8027 ZÜRICH

TEL. 2027020 TELEX 53800

October 10, 1978

Mr. Jaime Renart  
United Nations Development Programme  
P.O. Box 644  
11000 Belgrade/Yugoslavia

Subject: UNIDO Contract 77/81  
Project No. DP/YUG/75/021  
Activity Code 10 23 31-4

Dear Mr. Renart:

This letter and attachments are provided to document the field mission conducted in Yugoslavia during September, 1978, by Messrs. Ronald N. Flores, Dr. Kurt H. Schaffir and Hartmann Knorr, of Arthur Andersen & Co., as part of the seminar on Corporate Planning.


In brief, meetings were held in Belgrade and Zagreb with individuals from enterprises and republican and regional planning bodies, as preparation for the seminar to be held in Yugoslavia, from December 11 to December 22, 1978. The attached progress memorandum describes activities performed and agreements reached.

We are now preparing the seminar material and are looking forward to the forthcoming seminar.

If you should have any questions, please contact us.

Very truly yours,

ARTHUR ANDERSEN AG

  
Ronald N. Flores

ppa.   
Hartmann Knorr

ik

Encls.

cc: Mr. K. Moll, UNIDO  
Mr. D.F. Mant, UNIDO  
Mr. M. Nikoletic, IEI  
Dr. S. Ristić, Federal Administration for  
International Scientific, Education,  
Cultural and Technical Cooperation  
Mr. L. Milosavljević, Institute for Chemistry,  
Technology and Metallurgy  
Dr. Kurt H. Schaffir, AA&Co., New York  
Mr. Walter Tenz, AA&Co., Zurich  
Mr. Günther Leist, AA&Co., Düsseldorf

# ARTIUR ANDERSEN AG

PROJECT NO. DP/YUG/75/021

CORPORATE PLANNING

FIELD MISSION PROGRESS MEMORANDUM

## OBJECTIVE AND SCOPE

The objective of the Corporate Planning field mission was to assess the Yugoslav industrial and consulting environment and, in so doing, establish the link between our experience and the Yugoslav environment, so that the subsequent training seminar to be given in Yugoslavia during the weeks of December 11 and December 18, will focus on relevant issues.

The scope of our field mission included meetings and discussions with representatives from industrial organizations, republican and municipal planning authorities as described on Attachment I. On September 15, a presentation was given in Zagreb (see Attachment II), where we discussed our findings and obtained final agreement on the approach to prepare the seminar itself.

## ASSESSMENT OF YUGOSLAV ENVIRONMENT

We noted that there are many similarities in planning concepts as applied in our consulting engagements and the approach used in Yugoslavia. We noted a great emphasis on coordination of the planning processing within an enterprise as well as between enterprises, institutions of the social sector, republican and federal government bodies. Whereas the coordination of planning within an enterprise is similar to the environment in which we usually operate, the coordination between enterprises and other areas of society is the remarkable difference. In the U.S. and the Federal Republic of Germany for instance, coordination between enterprises as done in Yugoslavia would be contrary to existing laws. This extensive coordination effort requires in our view even better planning tools than usually used in the U.S. and Western Europe.

We further noted a relative emphasis on indicators as compared to action plans. This is in line with comments expressed by several of our interview partners concerning difficulties in implementing and controlling plans. Another weakness communicated to us during the various discussions is the orientation of many enterprises and other planning bodies towards production capacities versus market needs.

# ARTHUR ANDERSEN AG

- 2 -

Our overall assessment is that the planners are competent but the planning process is incomplete as to business actions from which the plan figures are to be derived. In addition, the feedback reporting necessary to control execution of plans and initiate corrective action appears to be incomplete. This may partially be due to the lack of adequate data processing support.

## SEMINAR MATERIAL AND AGENDA

It was agreed that the planning manual to be given to the seminar participants in advance should be kept rather condensed. It will include a description of Arthur Andersen & Co.'s standard approach to corporate planning and guidelines for application supported by sample working schedules.

We have provided most of our interview partners with a rather comprehensive list of potential topics which we might cover during the seminar. No specific selections from this topic list were made during and after the discussions including the final presentation in Zagreb. From the more general discussion about problems of planning in Yugoslavia, we extracted the following areas of special interest to the Yugoslav consultants (internal and external):

- Innovation/Product and Technology;
- Investment Evaluation;
- Market Evaluation/Product Mix;
- Control of Plan Realization;
- Practical Applications of Models;
- Risk Analysis;
- Communication of Plan and Objectives;
- Selection of Realistic Goals;
- Use of Data Bases and Software;
- Inflation.

We have therefore developed an agenda for the seminar which addresses the problem areas listed above and in addition concentrates on case studies and external guest speakers. The preliminary agenda is outlined on Attachment III. As strongly supported by the Yugoslav participants of the final presentation in Zagreb, the agenda is structured according to our recommended approach to corporate planning as outlined in Attachment IV.

Mr. Nikoletić indicated that he would accept responsibility for transport of handout material prepared in Hamburg (40 sets) to the seminar location. Other agreements are covered in the project document including:

- Maximum number of participants - 40;
- Participants should be sufficiently fluent in English to discuss and analyze selected case studies;
- For the general presentations, JUCOR will provide translators.

INSTITUTIONS & INDIVIDUALS INTERVIEWEDBelgrade, September 6 - 8, 1978

<u>Institution</u>	<u>Individual</u>
Viskoza Loznica	Mr. Popović
IHTM-CTE	Mr. Milosavljević
Invest-Import	Mr. Sotra
Privredna Komora Srbije	Mr. Ristić Mr. Radosavljević
Dvadeset PRVI Maj	Mr. Spica
Republički Zavod za Planiranje	Mr. Nikolin

Zagreb, September 12 - 15, 1978

<u>Institution</u>	<u>Individual</u>
Zavod za Produktivnost Zagreb	Mr. Bakrac
Privredna Komora Hrvatske	Dr. Zabić
TOZ	Mr. Radević
INA-OKI	Mr. Cizmić Mrs. Supić
Republički Zavod za Planiranje	Mr. Bilobrk
Chemical Combine	Mr. Fabić

PARTICIPANTS OF PRESENTATION ON FIELD MISSION FINDINGS

September 15, 1978

- Mr. Vucković Bogoljub
- Mr. Radovan Bakreć
- Mr. Zdraukomuraj
- Mr. Alexander Beljin
- Mr. Milislav Nikoletić
- Mr. Ljubisa Milosavljević
- Mr. Franc Grims
- Mr. Marijan Manfredo
- Plus two Other Yugoslav Participants



YUCOR

CORPORATE PLANNING SEMINAR

Yugoslavia, Dec. 11 - 22, 1978

Preliminary Program Summary

Monday, Dec. 11

<u>Topic No.</u>	<u>Time- hours</u>	<u>Subject</u>
1	2.0	Introduction to Seminar
2	0.5	Review of Field Mission
3	0.5	Review of Seminar Program
4	1.5	Basic Concepts and Terminology
5	0.5	Interrelation of Enterprise, Regional and National Planning
6	1.5	Introduction to Planning Charts

YUCOR

CORPORATE PLANNING SEMINAR

Yugoslavia, Dec. 11 - 22, 1978

Preliminary Program Summary

Tuesday, Dec. 12

<u>Topic No.</u>	<u>Time- hours</u>	<u>Subject</u>
7	1.5	Case Study A - Manufacturing Enterprise - Introduction and Discussion
8	0.5	Organizing the Planning Task
9	1.5	Environment Analysis and Review of External Data
10	1.0	Application of Environment Analysis to Case Study A
11	1.0	Position Assessment
12	1.0	Application of Position Assessment to Case Study A

YUCOR

CORPORATE PLANNING SEMINAR

Yugoslavia, Dec. 11 - 22, 1978

Preliminary Program Summary

Wednesday, Dec. 13

<u>Topic No.</u>	<u>Time- hours</u>	<u>Subject</u>
13	1.0	Strategy Development
14	1.0	Application of Strategy Development to Case Study A
15	1.5	Formulation and Validation of Objectives
16	1.0	Objective Formulation for Case Study A
17	1.0	Practical Constraints in Planning
18	1.0	Integration of Long-Range and Short-Range Plans

YUCOR

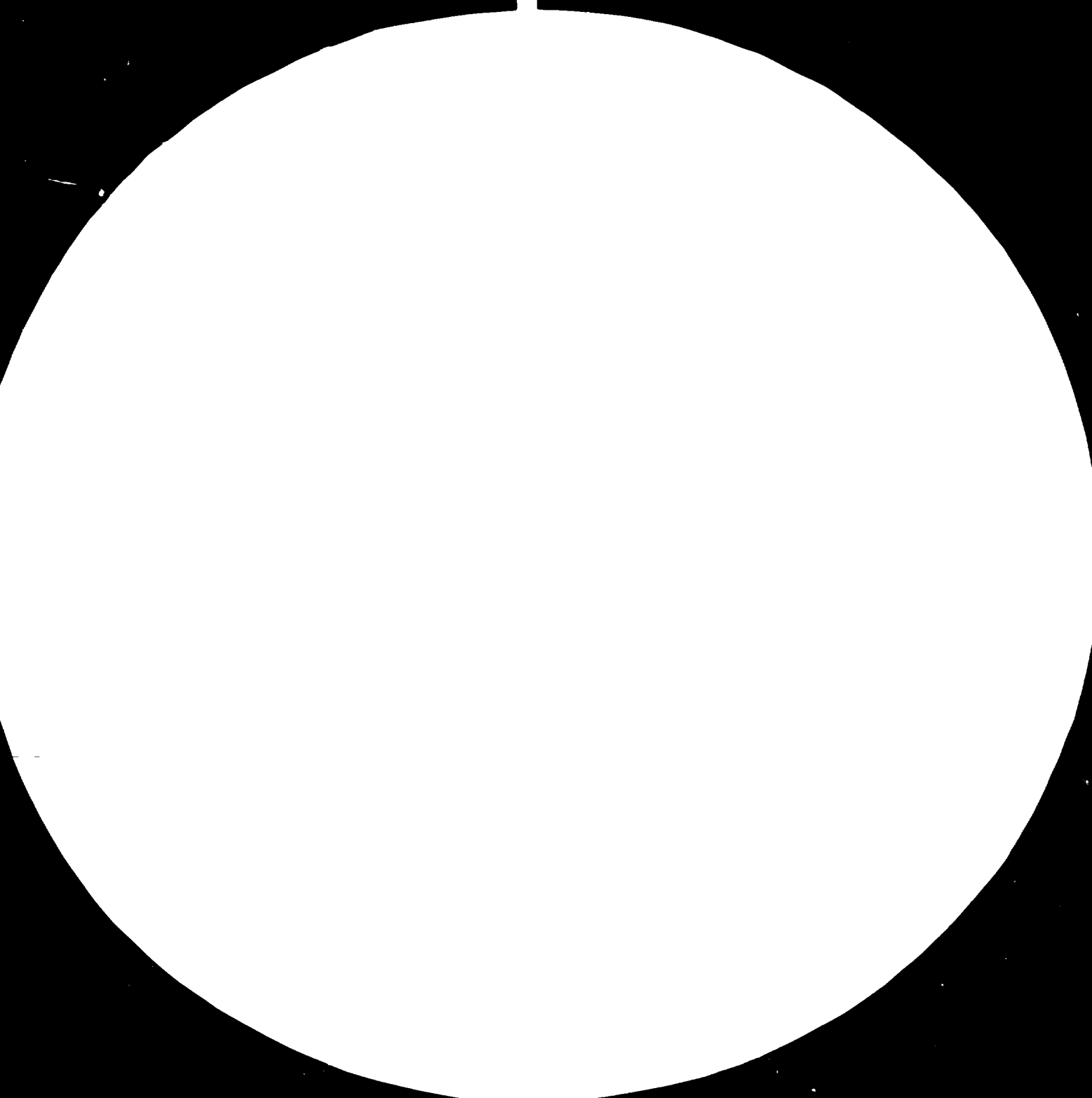
CORPORATE PLANNING SEMINAR

Yugoslavia, Dec. 11 - 22, 1978

Preliminary Program Summary

Thursday, Dec. 14

<u>Topic No.</u>	<u>Time- hours</u>	<u>Subject</u>
19	2.0	Strategy Examples
20	1.5	Quantitative Techniques
21	1.5	Case Study B Distribution Enterprise
22	1.5	Investment Analysis





2.5



Resolution Test Chart  
1.0 1.1 1.25 1.4 1.6 1.8 2.0 2.2 2.5

YUCOR

CORPORATE PLANNING SEMINAR

Yugoslavia, Dec. 11 - 22, 1978

Preliminary Program Summary

Friday, Dec. 15

<u>Topic No.</u>	<u>Time- hours</u>	<u>Subject</u>
23	4.0	Case Study C Electric Energy Enterprise
24	2.0	Preparation of Action Plans
25	0.5	Review of First Week

YUCOR

CORPORATE PLANNING SEMINAR

Yugoslavia, Dec. 11 - 22, 1978

Preliminary Program Summary

Monday, Dec. 18

<u>Topic No.</u>	<u>Time- hours</u>	<u>Subject</u>
26	2.0	Review of Different Industry Characteristics
27	3.0	Industry Example - Emphasis on Strategy Development
28	1.5	Special Techniques - Technological Forecasting, Research and Development Planning

Guest Speaker:  
Dr. Schimmelbusch,  
Metallgesellschaft A



YUCOR

CORPORATE PLANNING SEMINAR

Yugoslavia, Dec. 11 - 22, 1978

Preliminary Program Summary

Tuesday, Dec. 19

<u>Topic No.</u>	<u>Time- hours</u>	<u>Subject</u>
29	3.0	Industry Example - Emphasis on Formulation of Objectives
30	3.0	Case Study D - Decision Using Linear Programming

Guest Speaker:  
Dr. Förster,  
Daimler-Benz AG

YUCOR

CORPORATE PLANNING SEMINAR

Yugoslavia, Dec. 11 - 22, 1978

Preliminary Program Summary

Wednesday, Dec. 20

<u>Topic No.</u>	<u>Time- hours</u>	<u>Subject</u>
31	3.0	Industry Example - Emphasis on Environment Analysis
32	2.0	Controlling the Realization of the Long-Range Plan
33	1.5	Planning the Management Information Systems Function

Guest Speaker:  
Mr. Schwarzrock,  
Henkel KG

YUCOR

CORPORATE PLANNING SEMINAR

Yugoslavia, Dec. 11 - 22, 1978

Preliminary Program Summary

Thursday, Dec. 21

<u>Topic No.</u>	<u>Time- hours</u>	<u>Subject</u>	
34	3.0	Industry Example - Emphasis on Plan Implementation	Guest Speaker: Dr. Müller, Dresdner Bank AG
35	1.0	Financial Projections and Budgets	
36	0.5	Dealing with Human Attitudes in Planning	
37	1.0	Planning of Personnel Needs and Career Development	
38	1.0	The Consultant's Role in Planning	

YUCOR

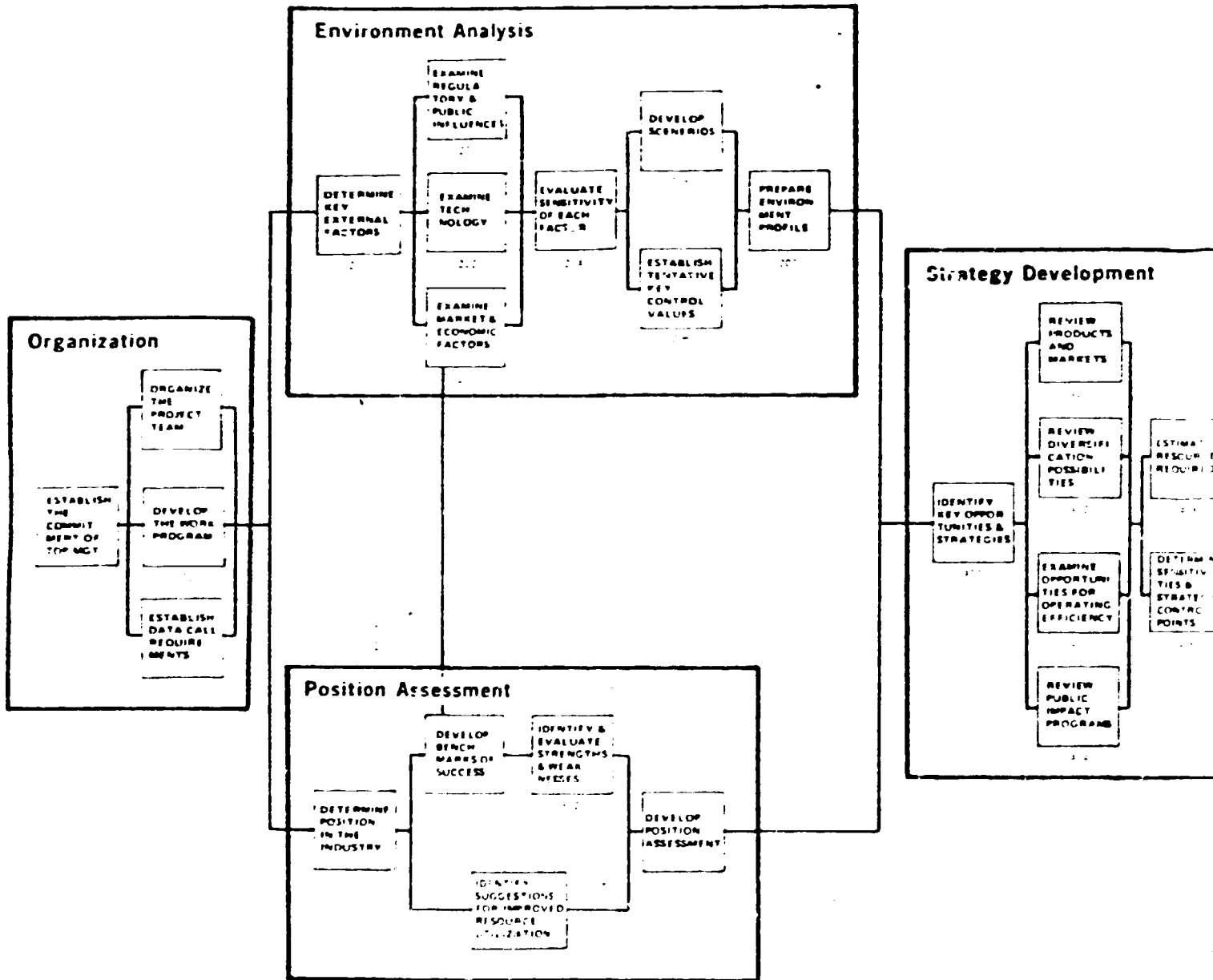
CORPORATE PLANNING SEMINAR

Yugoslavia, Dec. 11 - 22, 1978

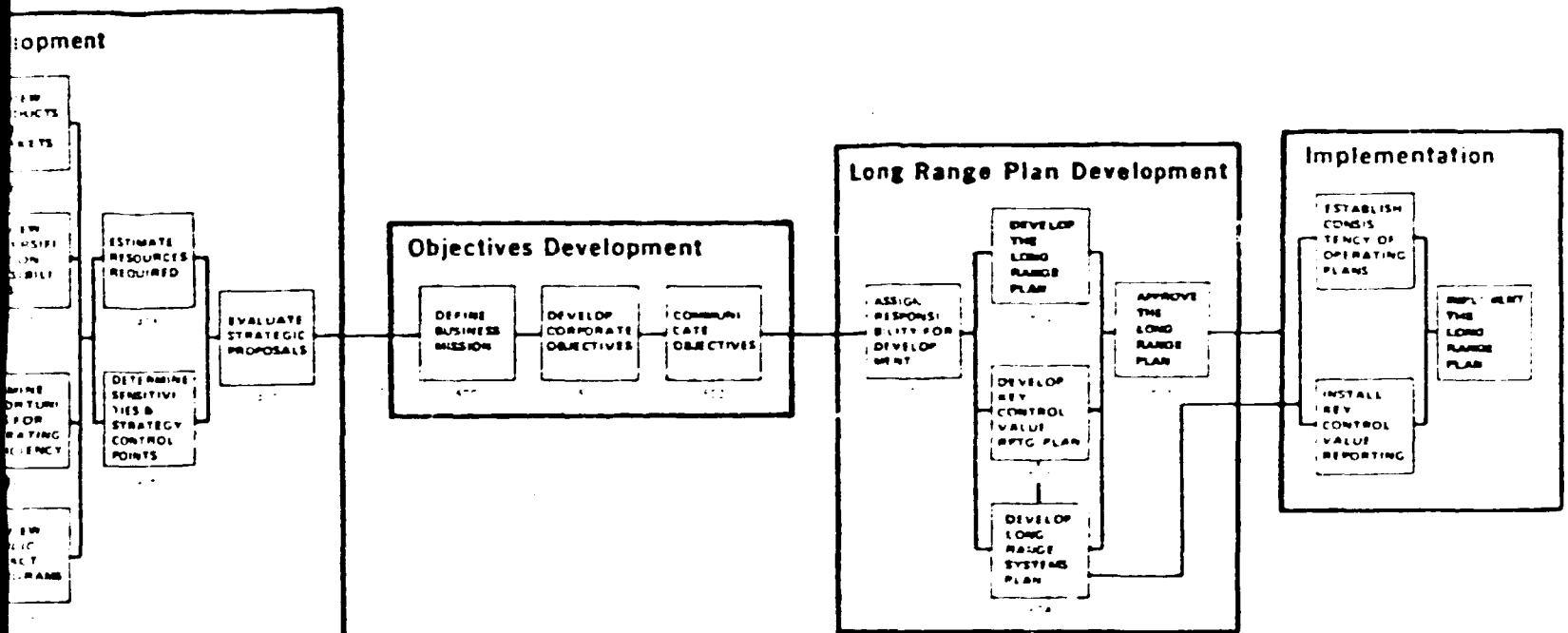
Preliminary Program Summary

Friday, Dec. 22

<u>Topic No.</u>	<u>Time- hours</u>	<u>Subject</u>	
39	3.0	Special Techniques Reconciling Conflicting Goals; Risk Evaluation	Guest Speaker: Professor Szyperski, BIFOA
40	0.5	Training the Planning Specialist	
41	1.0	Review and Discussion	



# LONG RANGE PLANNING PLANNING CHART



ARTHUR ANDERSEN AG

TÖDISTRASSE 47, POSTFACH

8027 ZÜRICH

TEL.2027020 TELEX 53800

October 10, 1978

Mr. Jaime Renart  
United Nations Development Programme  
P.O. Box 644  
11000 Belgrade/Yugoslavia

Subject: UNIDO Contract 77/81  
Project Number DP/YUG/75/021  
Activity Code 10 23 31-4

Dear Mr. Renart:

This letter and attachments are provided to document the field mission conducted in Yugoslavia during September, 1978, by Messrs. Stephen R. DuMont and Hartwig Kuhl, of Arthur Andersen & Co., as part of the seminar on Management Information Systems (MIS).

In brief, meetings were held in Ljubljana, Nova Gorica and Novi Sad with individuals from enterprises as preparation for the seminar to be held in Yugoslavia, from November 23, 1978. The attached progress memorandum describes activities performed and agreements reached.

We are now preparing the seminar material and are looking forward to the forthcoming seminar.

If you should have any questions, please contact us.

Very truly yours,

ARTHUR ANDERSEN AG

  
Ronald W. Flores

  
Hartwig Kuhl

ct

cc: Mr. K. Moll, UNIDO  
Mr. D. F. Mant, UNIDO  
Mr. M. Nikoletic, IEE, Belgrade  
Dr. S. Ristic  
Mr. L. Milosavljevic, Institute for Chemistry,  
Technology and Metallurgy  
Mr. S. R. DuMont, Hamburg  
Mr. W. Tenz, Zurich

# ARTIUR ANDERSEN AG

PROJECT NO. DP/YUG/75/021

MANAGEMENT INFORMATION SYSTEM (MIS)

FIELD MISSION PROGRESS MEMORANDUM

## OBJECTIVE AND SCOPE

The objective of the MIS field mission was to assess the Yugoslav industrial and consulting environment and, in so doing, establish the link between our experience and the Yugoslav environment, so that the subsequent training seminar to be given in Yugoslavia during the weeks of November 13 and November 20, 1978, will focus on relevant issues.

The scope of our field mission included meetings and discussions with representatives from industrial organizations, republican and municipal authorities as described on Attachment I. On September 15, a presentation was given in Ljubljana (see Attachment II), and on September 22, in Novi Sad, we discussed our findings and gave a presentation on Long-Range Systems Planning (hard copies of the slides used, see Attachment III), and obtained the final agreement on the approach to prepare the seminar itself.

## ASSESSMENT OF YUGOSLAV ENVIRONMENT

To fully appreciate the existing situation and the related problems in Yugoslavia one has to consider a number of circumstances we noted during our field mission:

### - Restrictions on Computer Hardware

From time to time severe restrictions as to the import of computers and related peripheral equipment are imposed on the Yugoslav enterprises. Recently, these restrictions were abandoned after a three-year period so that very many enterprises now rush into the first time computer application or into significant upgrading of their existing hardware. A further limiting factor for the import of computers is the need for (or lack of) foreign currencies. Generally enterprises engaged in the export to foreign countries are in a much better position to accumulate the foreign currencies needed than others which concentrate on the domestic market.

This situation might improve once computers start being built within Yugoslavia as foreseen by three joint venture agreements between local enterprises and foreign hardware manufacturers.



## ARTHUR ANDERSEN AG

### - Limited Availability of Experienced EDP Personnel

In many cases the introduction of EDP within an enterprise is highly--if not even solely--dependent on somebody's initiative who is able to "sell his idea" of introducing EDP to the Workers' Council and who is capable of organizing the work involved therein. In addition, it is normally quite difficult to find enough EDP-qualified personnel to staff such an operation due to the fact that the commercial application of EDP has a relatively short history in Yugoslavia so far.

### - Limited Knowledge of Enterprise Management About How Computers Could Assist Them in Their Work

A great number of managers in the enterprises have had no or very limited exposure so far to the capabilities of EDP. Therefore they

- have limited interest in EDP assistance;
- have limited knowledge of what is required to develop and install a computer based system;
- have difficulties in expressing their wishes;
- have difficulty in evaluating the request to use or make greater use of computers and in judging the benefits and costs; and
- generally do not actively participate in the development of EDP applications.

On the other hand, it is the EDP people who have to take the initiative in developing new applications and in pushing the computer usage within an enterprise.

Taking these above-mentioned restrictions into consideration, most of the following observations seem to be a direct result of this situation:

- There are a number of EDP applications in operation at those enterprises reviewed, but most of them are manipulating data (transaction systems), not generating information. Therefore, systems which assist management in decision making, business control, planning, analysis, etc., are seldom to be found. Most of the "information" generated is for external purposes (SDK, local and republic authorities, etc.): In one enterprise we learned that 80% of the information is

## ARTHUR ANDERSEN AG

produced for external purposes, 20% for internal (i.e., enterprise) usage, and of this 20%, only a small portion is for helping in the decision making and control process.

- Some enterprises with a longstanding EDP practice have developed high skills and knowledge in such areas as standards and procedures in developing and documenting new EDP applications, in exploiting their computer resources, and in training their personnel. However, none of the enterprises reviewed covers all of these aspects at the same time. Other enterprises still have to significantly improve the effective management over their EDP facilities and related activities.
- As in most cases "data processing" is done rather than information processing, and the result is that
  - the computer applications are generally not integrated but isolated;
  - the information is not structured for the usage of management on different organizational levels;
  - the information generally pertains to the daily business transactions and is not of "higher value" for control and analysis, decision making, and planning activities; and
  - more complete controls need to be applied over the input, processing and output.
- In most <sup>COMPANIES</sup> ~~categories~~ we noted that the initiative to develop an information system lies within the EDP department (organization) which acts almost independently from the future users of the new system work. The joint project team approach of EDP personnel and user personnel is seldom followed in an effective manner. This, in turn, affects the value of the applications generated because they might not fully meet the user's needs.
- Most of the enterprises spend considerable time, money and effort in preparing studies to determine their future computer hardware requirements. Enterprises with small hardware plan to introduce much more advanced and complex hardware and system software within the next two or three years.

However, these studies generally lack a detailed plan covering the phased approach to developing and installing the applications programs (information system) and a

ARTHUR ANDERSEN AG

plan showing how they would train their available and required EDP personnel. We got the impression that without these two plans the enterprises will not solve their problems but significantly increase them instead.

- Although the development of EDP applications is quite expensive and time-consuming and the EDP personnel resources limited, we found that cooperation among enterprises with regard to joint development of EDP applications of a common nature is seldom to be found. We were informed that five Slovenian enterprises ~~have~~ <sup>will</sup> ~~now~~ jointly developed an application, but this can be regarded as an exception.

During each of the "seminars" held in Ljubljana and Novi Sad, we noted and discussed the areas for improvement for the following:

- A formalized training program for EDP and management personnel should be initiated or intensified in the following aspects:
  - EDP personnel should get training in order to understand the principles and practices of the operations of their enterprises.
  - Management personnel including Workers' Council representatives should get a basic computer-related training in order to better understand the capabilities of computers and how they can be used for management's purposes.

By means of such a training program, the joint cooperation of both groups in the area of the development of computer applications could be significantly increased, thus making the result of the work more valuable to the enterprises.

- The enterprises should establish more groups of joint interests in the following areas:
  - Jointly setting up and running EDP centers, thus enabling smaller enterprises, especially those without sufficient funds of foreign currencies to enter the EDP field;
  - Jointly developing software programs which might be installed with various enterprises belonging to different identities;
  - Exchanging existing software programs among themselves.

## ARTHUR ANDERSEN AG

- A systemized approach should be developed to
  - Long-range systems planning, combining the planning of computer software, hardware, personnel and training;
  - Documentation standards and procedures;
  - Software development in a coordinated stepwise approach;
  - Organized project management.

### SEMINAR MATERIAL AND AGENDA

As part of the two meetings organized at the end of the review visits in Ljubljana and Novi Sad, the tentative outline for the MIS-Seminar to be held in November was presented and discussed with the participants (see Attachment IV). Basically the participants approved the contents and the topics which will be presented. Their suggestion was that we should stress the point that information systems should be implemented in an organized approach and that we should demonstrate to the seminar participants how that could be done.

The following previously agreed upon arrangements were confirmed:

- All attendants will be able to fully communicate in English;
- Attendance will be limited to 35 participants.

## ARTIUR ANDERSEN AG

ENTERPRISES CONTACTED DURINGMIS FIELD MISSION

(September 12 - 22, 1978)

<u>Date</u>	<u>Enterprise Contracted</u>	<u>Main Discussion Partners</u>
9/12	Ljubljanska Banka, Ljubljana	Mrs. D. Sodin Mr. F. Grims Mr. M. Vrēca
9/12	ITEO, Ljubljana	Mr. S. Mihelič Mr. I. Štucin
9/13	EMONA, Ljubljana	Mr. M. Pertovt
9/14	Meblo, Nova Gorica	Mr. Kosmina
9/15	Gospodarska Zbornica Slovenije, Ljubljana (1st Seminar)	See Attachment II
9/20	Naftagas, Novi Sad	Mr. A. Takači Mr. D. Šoklovački
9/21	Novosadska Banka, Novi Sad	Mr. Z. Karanov Mr. Djerdj
9/22	Savezni Centar Za Organizaciju Poslovanja I Usavršavanje Kadrova, Novi Sad (2nd Seminar)	Mr. S. Kalapašev Mr. B. Miliwojević Mr. A. Takači Dr. D. Obradović Plus 5 other participants

GOSPODARSKA ZBORNICA  
SLOVENIJE

61001 Ljubljana, Titova 19  
Pošt. predal 484 — Tel. 23-851

Številka: 113-10/78-05/

Datum 21.9.1978.


Dear Mr.  
Hartwig Kuhl

Enclosed we sent to you a list of attended people at discussion about information systems on Friday, 15<sup>th</sup> of September, 1978:

1. Alojz Alič, Produktivnost, Ljubljana
2. Janez Debeljak, Gospodarska zbornica Slovenije, Ljubljana
3. Ignac Kravcar, DES, Ljubljana
4. Marjan Krisper, Republ.komite za družbeno planiranje in informacijski sistem, Ljubljana
5. Franc Mencinger, Produktivnost, Ljubljana
6. Miran Mihelčič, Gospodarska zbornica Slovenije, Ljubljana
7. Slavko Mihelič, Inštitut za tržne raziskave, organizacijo in ekonomiko, Ljubljana
8. Ivan Folek, Ljubljanska banka, Ljubljana
9. Janez Prešern, Inštitut za tržne raziskave, organizacijo in ekonomiko, Ljubljana
10. Gorazd Reič, Slovenija ceste, Ljubljana
11. Dane Sodin, Ljubljanska banka, Ljubljana
12. Franc Špiler, Produktivnost, Ljubljana
13. Metod Štrumbelj, Produktivnost, Ljubljana
14. Jože Uhan, Novoles, Novo mesto
15. Stevo Zubec, Produktivnost, Ljubljana

Yours sincerely,  
Miran Mihelčič


# INTRODUCTION TO LONG-RANGE SYSTEMS PLANNING




---

## Introduction To Long-Range Systems Planning


1



**MAJOR  
DEVELOPMENT STEPS**

- DEFINE THE TOTAL INFORMATION NEEDS OF THE COMPANY
- ASSESS CURRENT MANUAL AND AUTOMATED SYSTEMS
- DEVISE A PLAN TO PRIORITIZE SYSTEMS DEVELOPMENT ACTIVITIES
  - 5-YEAR GENERAL PLAN
  - MORE DETAILED ANNUAL PLAN
  - OPTIONS FOR CHANGE

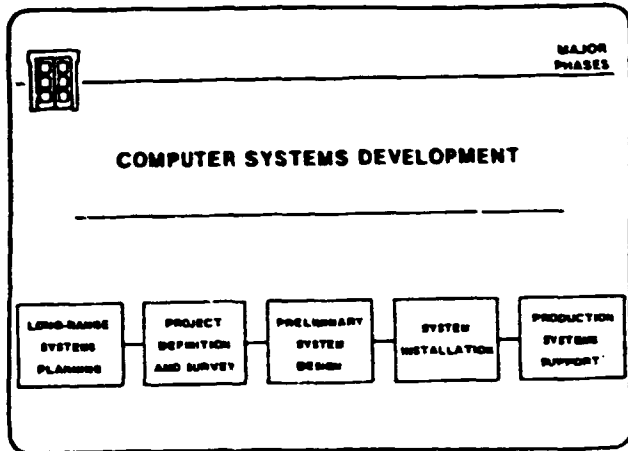
2



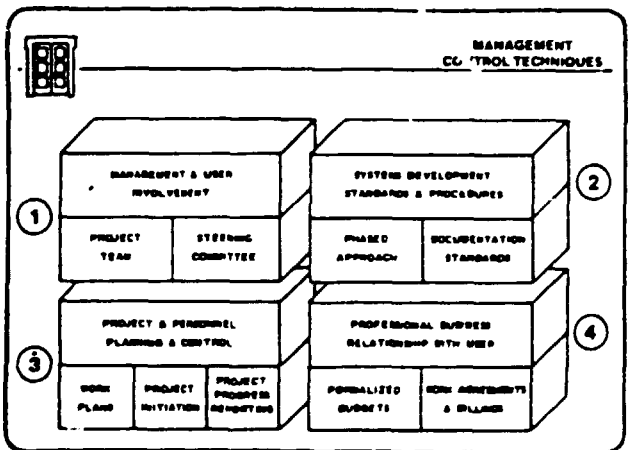
**MANAGEMENT  
CONTROL TECHNIQUES**

①	MANAGEMENT & USER INVOLVEMENT		SYSTEM DEVELOPMENT STANDARDS & PROCEDURES		②	
	PROJECT TEAM	STEERING COMMITTEE	PHASE APPROACH	DOCUMENTATION STANDARDS		
③	PROJECT & PERSONNEL PLANNING & CONTROL			PROFESSIONAL BUSINESS RELATIONSHIP WITH USER		④
	USER PLANS	PROJECT INITIATION	PROJECT PROGRAM REPORTING	FORMALIZED SUBSETS	USER AGREEMENTS & CHANGES	

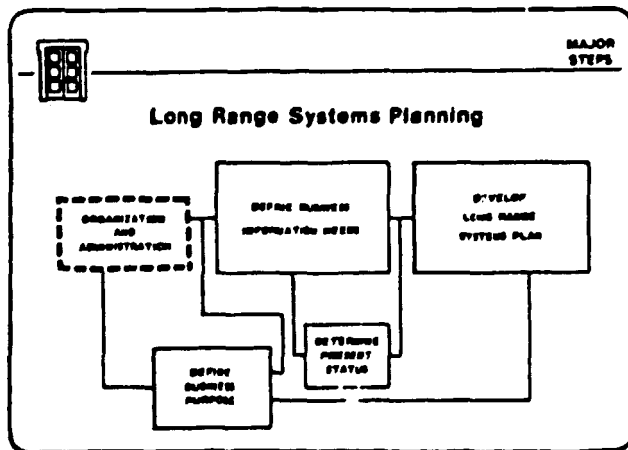
3



4

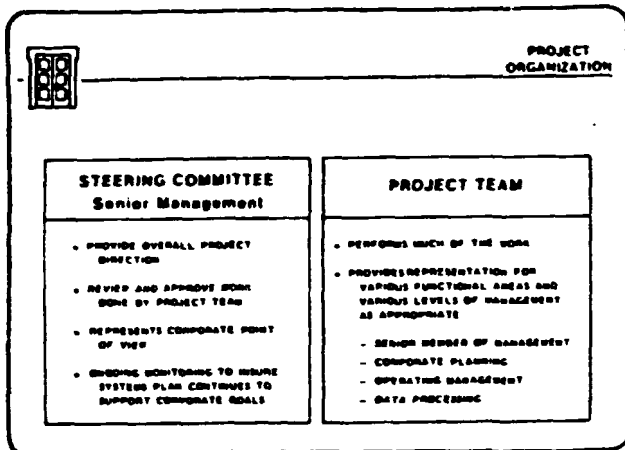


5

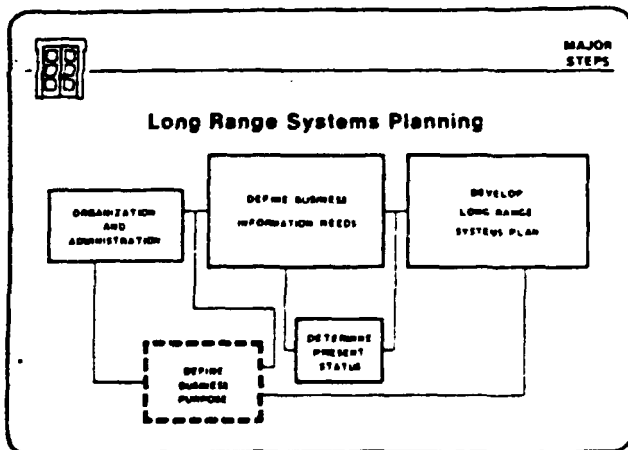


5A

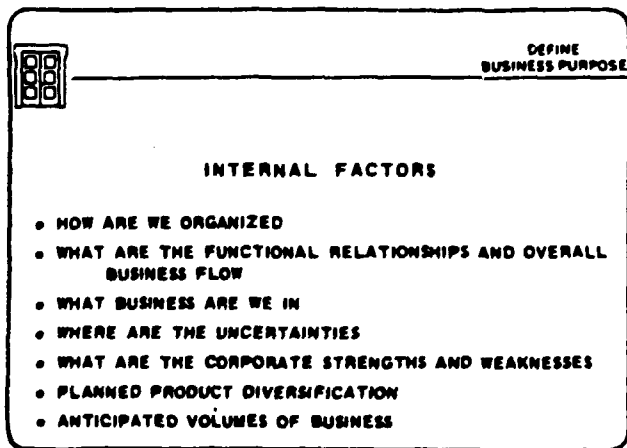




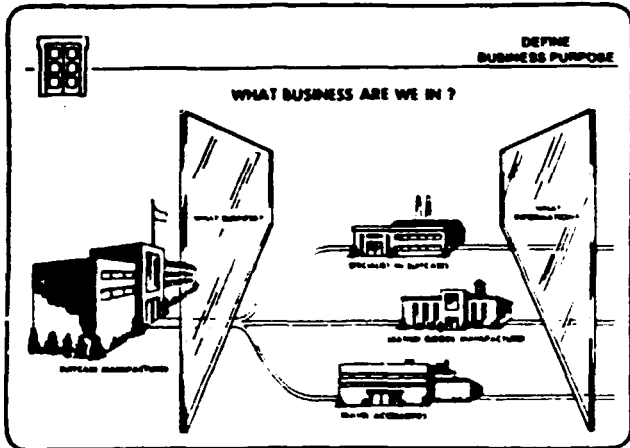
6



7



8



9

**DEFINE  
BUSINESS PURPOSE**

**INTERNAL FACTORS**

- HOW ARE WE ORGANIZED
- WHAT ARE THE FUNCTIONAL RELATIONSHIPS AND OVERALL BUSINESS FLOW
- WHAT BUSINESS ARE WE IN
- WHERE ARE THE UNCERTAINTIES
- WHAT ARE THE CORPORATE STRENGTHS AND WEAKNESSES
- PLANNED PRODUCT DIVERSIFICATION
- ANTICIPATED VOLUMES OF BUSINESS

10

**DEFINE  
BUSINESS PURPOSE**

**EXTERNAL FACTORS**

- WHO ARE OUR CUSTOMERS
- WHAT, WHY, AND HOW DO THEY BUY
- WHO ARE OUR COMPETITORS
- WHAT ARE THE RESOURCES AND STRATEGIES OF OUR COMPETITORS
- WHAT IS THIS COMPANY'S COMPETITIVE STRATEGY
- WHAT IS CHANGING IN THE BUSINESS

11

DEFINE  
BUSINESS PURPOSE

**DEFINITION - KEY INGREDIENTS THAT ARE FUNDAMENTAL TO THE SUCCESS OF THE BUSINESS**

**EXAMPLE - CONSUMER PRODUCTS COMPANY**

- UNIQUE PRODUCT QUALITY AND STRONG BRAND IDENTIFICATION
- STRONG DISTRIBUTION FRANCHISE
- PEOPLE
- COMMODITY PROCUREMENT

12

DEFINE  
BUSINESS PURPOSE

**DEVELOP CRITERIA FOR PRIORITIZING WORK**

REDUCED CLERICAL REQUIREMENTS    IMPROVED INFORMATION

REDUCED OPERATING COSTS    IMPROVED RELIABILITY & CONTROL

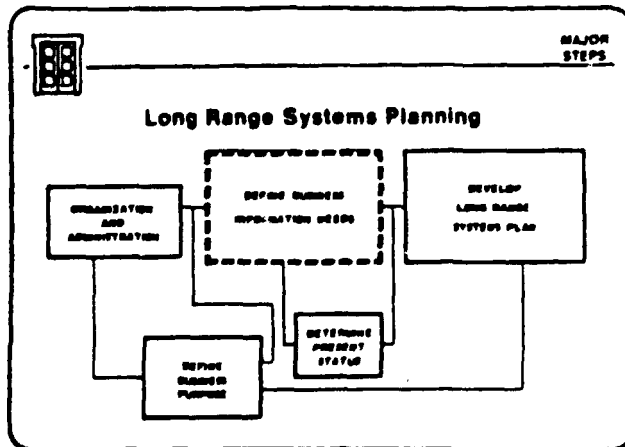
REDUCED COMPUTER REQUIREMENTS

FLEXIBILITY FOR OPERATIONAL CHANGES    FLEXIBILITY FOR GROWTH

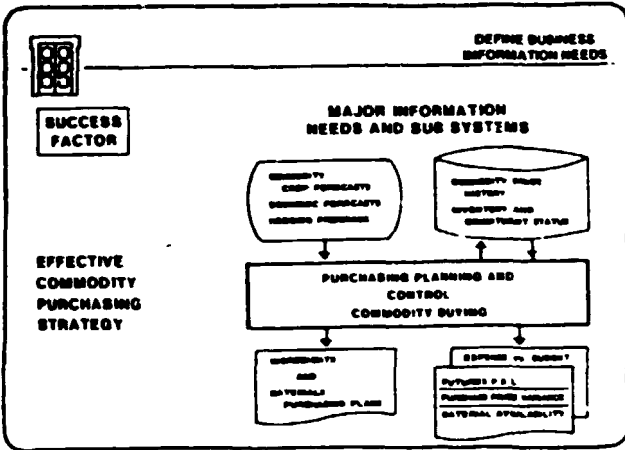
MINIMUM INSTALLATION REQUIREMENTS

ABILITY TO HANDLE BUSINESS EXPANSION

13



14

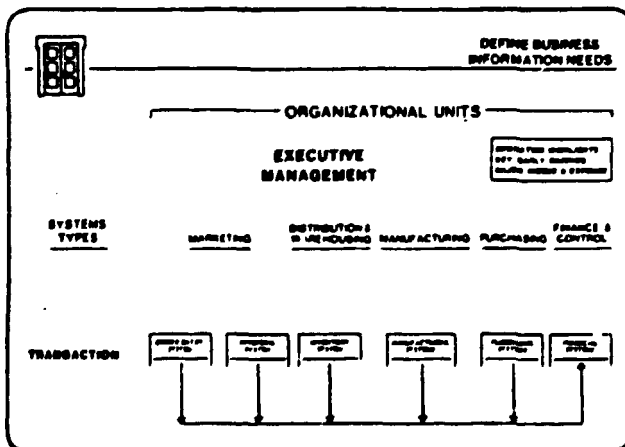


15

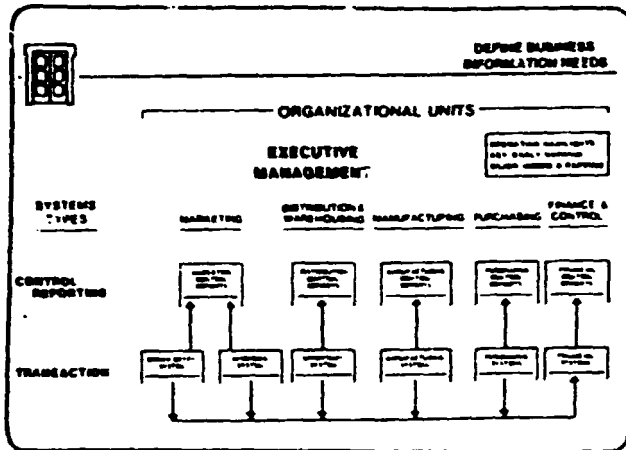
**DEFINE BUSINESS INFORMATION NEEDS**

SYSTEMS TYPES	DEFINITION	EXAMPLES
1 TRANSACTION	PROCESS DAY-TO-DAY OPERATIONAL AND ADMINISTRATIVE FUNCTIONS OF THE COMPANY	PAYROLL CHECKS INVOICES STOCK STATUS
2 CONTROL REPORTING	INFORMATION TO MONITOR PERFORMANCE AND TAKE CORRECTIVE ACTION	PRODUCT & CUSTOMER PROFITABILITY vs. PLAN
3 STRATEGIC	ANALYZE AND PRESENT BASIC OPERATIONAL ALTERNATIVES	PRODUCT LINE PRICING MODELS

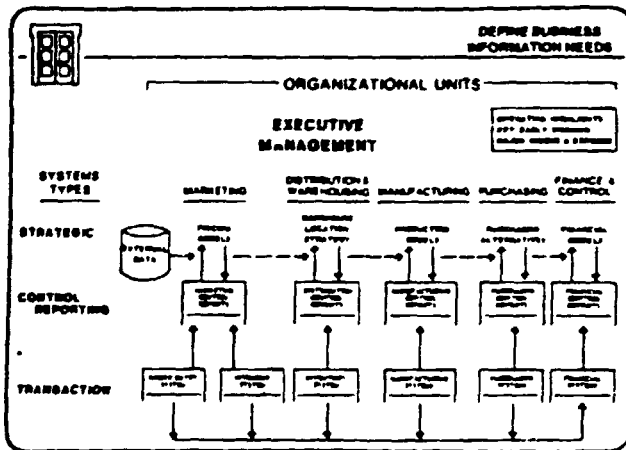
16



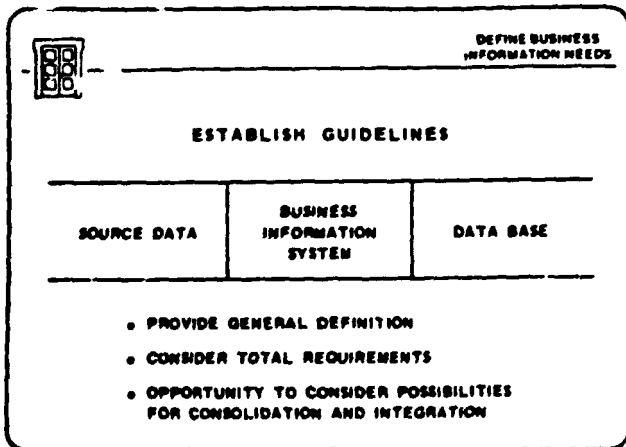
17



18

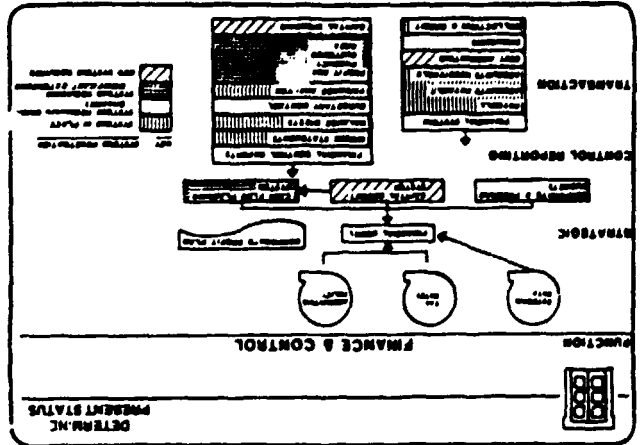


19

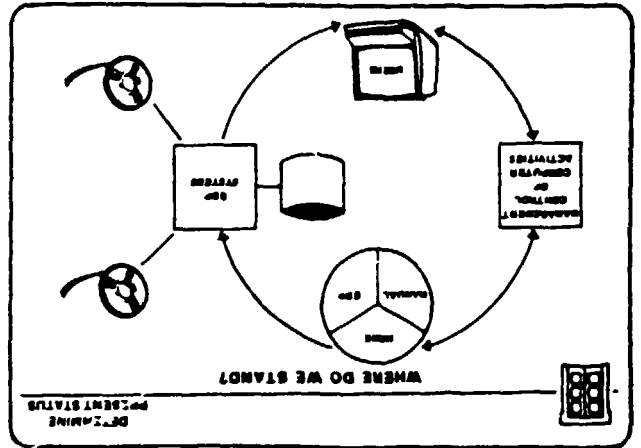


20

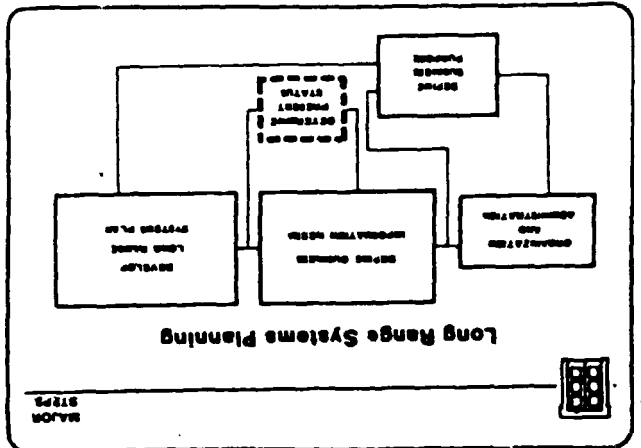
23

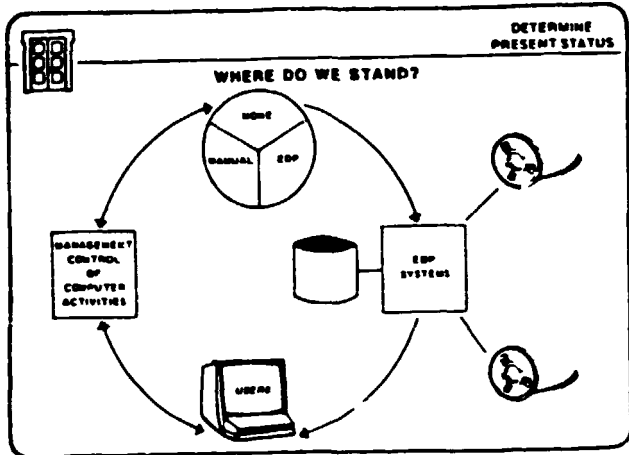


22

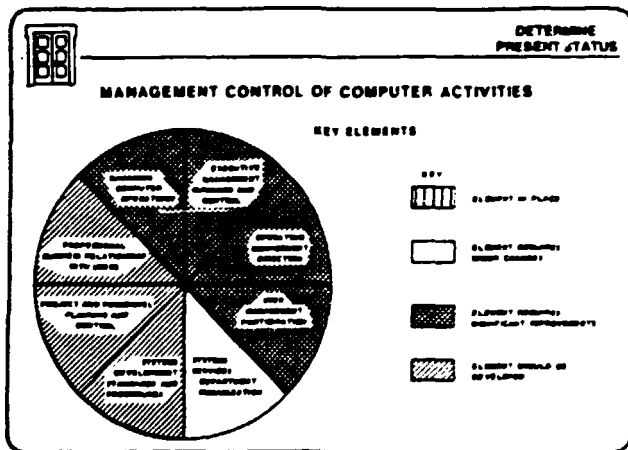


21

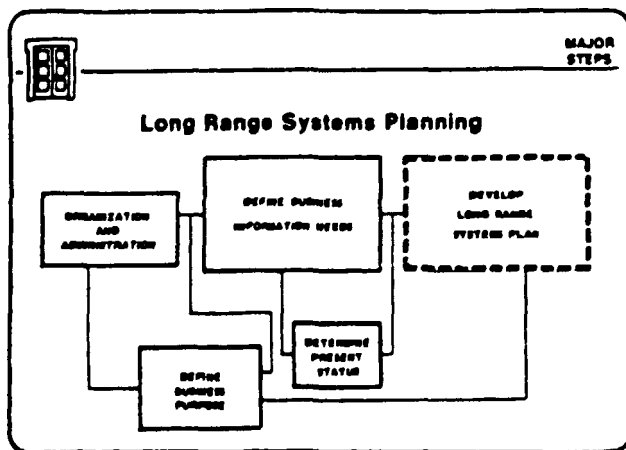




24



25



26



DEVELOP LONG RANGE PLAN

OBJECTIVES:

- PROJECTS SMALL ENOUGH TO BE MANAGEABLE DURING INSTALLATION
- PROVIDE FLEXIBILITY FOR CORPORATE CHANGE OF DIRECTION
- PROVIDE USABLE SYSTEMS AS EARLY AS POSSIBLE
  - EARLY BENEFIT
  - GRADUAL USER CHANGE

27



DEVELOP LONG RANGE PLAN

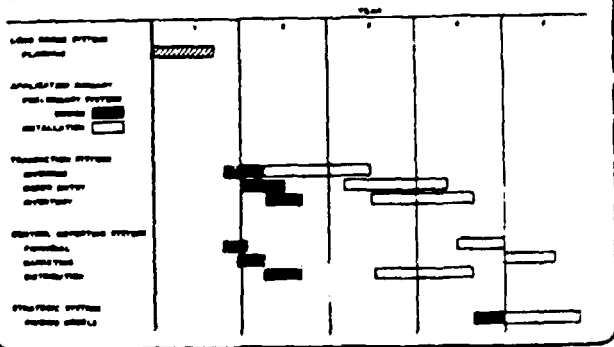
EXAMPLES OF PROJECTS IDENTIFIED FOR MANUFACTURING DISTRIBUTION CONTROL SYSTEM

- DISTRIBUTION PLANNING AND ANALYSIS
- FREIGHT PLANNING AND CONTROL
- PERFORMANCE ANALYSIS
- WAREHOUSE SITE SELECTION
- WAREHOUSE REPLENISHMENT

28

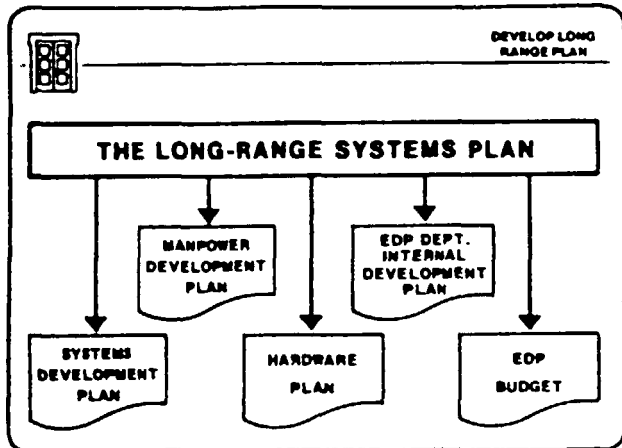


DEVELOP LONG RANGE SYSTEMS PLAN

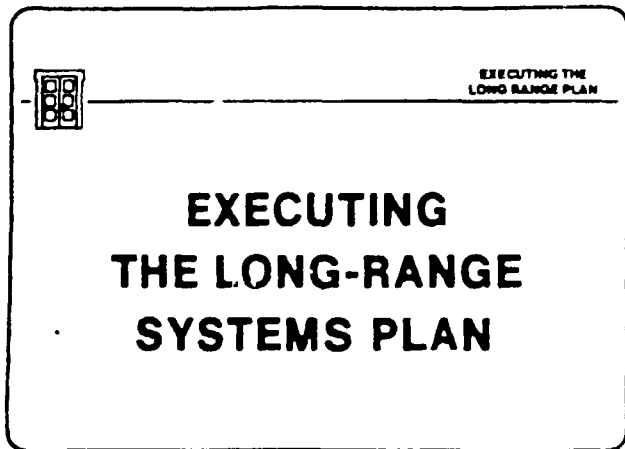


29

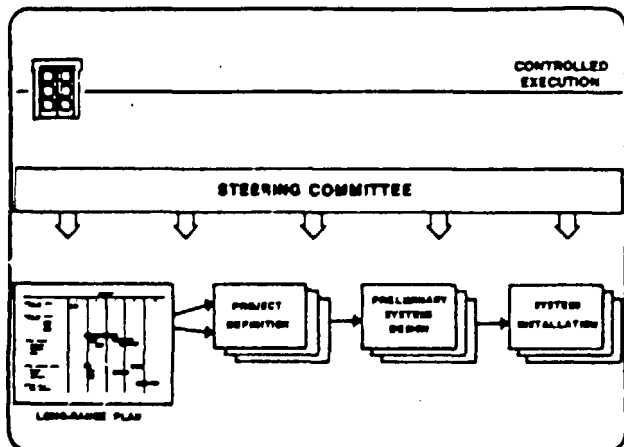




30



31



32



**COMMON PROBLEMS  
AND PITFALLS**

- LACK OF TOP MANAGEMENT COMMITMENT AND PARTICIPATION
- INADEQUATE INVOLVEMENT BY USER DEPARTMENTS AND OPERATING MANAGEMENT
- EACH COMPANY MUST ADAPT THE GENERAL APPROACH TO ITS OWN ENVIRONMENT
- PLAN SHOULD NOT BE RIGID BUT GRADUAL AND EVOLUTIONARY

33



**COMMON PROBLEMS  
AND PITFALLS**

- BOTTOM UP APPROACH (ONLY INTERVIEW MANAGEMENT TO DETERMINE MANAGEMENT'S REPORTING NEEDS)
- SHORT CUTS WHICH OBSCURE SYSTEMS POTENTIALS NOT READILY OBSERVED
- PROVIDING TOO MUCH INFORMATION OR NOT PROVIDING THE SPECIFIC INFORMATION NEEDED TO CONTROL THE BUSINESS
- NOT COMPLETING SPECIFIC COMPREHENSIVE PLANS WITH CORPORATE PRIORITIZATION

34

JUCOR-UNIDO  
=====

MANAGEMENT INFORMATION SYSTEM  
(MIS)

SEMINAR -- LOCATION

AGENDA AND SPEAKERS

NOVEMBER 13 - 24, 1978

JUCOR-UNIDO

MANAGEMENT INFORMATION SYSTEM (MIS)

DAY ONE -- NOVEMBER 13, 1978

AGENDA

<u>TOPIC NO.</u>	<u>TOPIC DESCRIPTION</u>	<u>DISCUSSION LEADER</u>	<u>TIME</u>
110	WELCOME -- OPENING REMARKS AND. OBJECTIVES		0.75
120	PRESENTATION AND DISCUSSION OF FINDINGS DURING FIELD MISSION		1.00
130	ARTHUR ANDERSEN & CO. -- ADMINISTRATIVE SERVICES DIVISION - OVERVIEW		0.75
140	MANAGEMENT INFORMATION SYSTEM - WHAT IS IT?		1.50
150	ENVIRONMENT FOR A MIS		0.50
160	DEVELOPMENT STEPS OF A MIS		0.50
170	SYSTEMS BY MAJOR INDUSTRY AND COMPANY FUNCTION		0.50
180	TRANSACTION SYSTEMS OVERVIEW		0.50

JUCOR-UNIDO  
MANAGEMENT INFORMATION SYSTEM (MIS)  
DAY TWO -- NOVEMBER 14, 1978

AGENDA

<u>TOPIC NO.</u>	<u>TOPIC DESCRIPTION</u>	<u>DISCUSSION LEADER</u>	<u>TIME</u>
200	OVERVIEW OF DAY 2		0.25
210	TRANSACTION SYSTEMS-EXAMPLES		
211	- A/R & CASH RECEIPTS		0.50
212	- A/P & CASH DISBURSEMENTS		0.50
213	- CUSTOMER ORDER PROCESSING		1.00
220	LONG-RANGE BUSINESS PLANNING		2.00
230	MANAGEMENT REPORTING - AN OVERVIEW		0.75
240	ROLE OF KEY FACTORS IN PLANNING AND REPORTING		1.00

JUCOR-UNIDO

MANAGEMENT INFORMATION SYSTEM (MIS)

DAY THREE -- NOVEMBER 15, 1978

AGENDA

<u>TOPIC NO.</u>	<u>TOPIC DESCRIPTION</u>	<u>DISCUSSION LEADER</u>	<u>TIME</u>
300	OVERVIEW OF DAY 3		0.25
310	SYSTEMS BY MAJOR COMPANY FUNCTION - MARKETING - General Description - Basic Marketing Planning and Reporting - Systems Design - Information Processing Design - Industry Case Examples - Discussion		4.75
320	SYSTEMS BY MAJOR COMPANY FUNCTION - OPERATIONS - General Description - Basic Operations Planning and Reporting - Systems Design - Information Processing Design - Industry Case Examples - Discussion		1.00

(will be continued next day)

JUCOR-UNIDO

MANAGEMENT INFORMATION SYSTEM (MIS)

DAY FOUR -- NOVEMBER 16, 1978

AGENDA

<u>TOPIC NO.</u>	<u>TOPIC DESCRIPTION</u>	<u>DISCUSSION LEADER</u>	<u>TIME</u>
400	OVERVIEW OF DAY 4		0.25
320	SYSTEMS BY MAJOR COMPANY FUNCTION - OPERATIONS (Cont'd) - General Description - Basic Operations Planning and Reporting - Systems Design - Information Processing Design - Industry Case Examples - Discussion		4.25
410	SYSTEMS BY MAJOR COMPANY FUNCTION - FINANCIAL - General Description - Basic Financial Planning and Reporting - Systems Design - Information Processing Design - Industry Case Examples - Discussion		1.50

(will be continued next day)

JUCOR-UNIDO  
MANAGEMENT INFORMATION SYSTEM (MIS)  
DAY FIVE -- NOVEMBER 17, 1978

AGENDA

<u>TOPIC NO.</u>	<u>TOPIC DESCRIPTION</u>	<u>DISCUSSION LEADER</u>	<u>TIME</u>
500	OVERVIEW OF DAY 5		0.25
410	SYSTEMS BY MAJOR COMPANY FUNCTION - FINANCIAL (Cont'd) - General Description - Basic Operations Planning and Reporting - Systems Design - Information Processing Design - Industry Case Examples - Discussion		4.50
500	RESPONSIBILITY, REPORTING CONCEPTS		1.25



JUCOR-UNIDO

MANAGEMENT INFORMATION SYSTEM (MIS)

DAY SIX -- NOVEMBER 20, 1978

AGENDA

<u>TOPIC NO.</u>	<u>TOPIC DESCRIPTION</u>	<u>DISCUSSION LEADER</u>	<u>TIME</u>
600	OVERVIEW OF DAY 6		0.25
610	SYSTEM CONCEPTS - Company Organization - Company Policy - Discussion		2.50
620	LONG-RANGE SYSTEMS PLANNING		3.25

JUCOR-UNIDO  
MANAGEMENT INFORMATION SYSTEM (MIS)  
DAY SEVEN -- NOVEMBER 21, 1978

AGENDA

<u>TOPIC NO.</u>	<u>TOPIC DESCRIPTION</u>	<u>DISCUSSION LEADER</u>	<u>TIME</u>
700	OVERVIEW OF DAY 7		0.25
710	SYSTEMS ENGAGEMENTS		1.00
	- What is a System Engagement?		
	- Planning and Control of System Engagements		
	- IF Systems Project Management		
720	PROJECT DEFINITION AND SURVEY		1.00
730	PRELIMINARY SYSTEMS DESIGN		3.75
	- Review Present System		
	- Interviewing Techniques		
	- Determine Information Requirements		
	- Design Reporting System		
	- Report Design Techniques		
	- Design the Reporting System		
	- Case Study		
	- Design the Processing System		
	- Manual Systems Techniques		
	- Case Example		
	- Define File Requirements		
	- Determine Input Requirements		
	- Installation Schedule		
	- Equipment Evaluation		
	- Economic Evaluation		
	- Preparation/Presentation of Recommendations		

(will be continued next day)

JUCOR-UNIDO  
MANAGEMENT INFORMATION SYSTEM (MIS)  
DAY EIGHT -- NOVEMBER 22, 1978

AGENDA

<u>TOPIC NO.</u>	<u>TOPIC DESCRIPTION</u>	<u>DISCUSSION LEADER</u>	<u>TIME</u>
600	OVERVIEW OF DAY 8		0.25
730	PRELIMINARY SYSTEMS DESIGN (Cont'd) - Recap of Previous Day's Topics - Continue with Topics		3.75
810	SYSTEMS INSTALLATION - Detailed System Design - Forms Design (Specific technical points to consider) - Decision Table Techniques - Coding Techniques/Problem - Conversion Preparation - Control Procedures - Systems Test, Conversion, and Follow-up - Working Paper Organization  (will be continued next day)		2.00

JUCOR-UNIDO

MANAGEMENT INFORMATION SYSTEM (MIS)

DAY NINE -- NOVEMBER 23, 1978

AGENDA

<u>TOPIC NO.</u>	<u>TOPIC DESCRIPTION</u>	<u>DISCUSSION LEADER</u>	<u>TIME</u>
900	OVERVIEW OF DAY 9		0.25
810	SYSTEMS INSTALLATION (Cont'd) <ul style="list-style-type: none"><li>- Detailed System Design</li><li>- Forms Design (Specific technical points to consider)</li><li>- Decision Table Techniques</li><li>- Coding Techniques/Problem</li><li>- Conversion Preparation</li><li>- Control Procedures</li><li>- Systems Test, Conversion, and Follow-up</li><li>- Working Paper Organization</li></ul>		1.50
910	THE ROLE OF INFORMATION PROCESSING TECHNOLOGY <ul style="list-style-type: none"><li>- Status and Trends in Electronic Data Processing</li><li>- Generations and Types of Computers</li><li>- Computers in the Yugoslav Environment</li><li>- Data Base</li><li>- Control versus Distributed Processing</li></ul>		4.25

JUCOR-UNIDO  
MANAGEMENT INFORMATION SYSTEM (MIS)  
DAY TEN -- NOVEMBER 24, 1978

AGENDA

<u>TOPIC NO.</u>	<u>TOPIC DESCRIPTION</u>	<u>DISCUSSION LEADER</u>	<u>TIME</u>
1000	OVERVIEW OF DAY 10		0.25
1010	CONSULTANT'S ROLE IN ASSISTING MANAGEMENT TO SHARE AND CONTROL THE SYSTEMS RESOURCE - CRITERIA FOR MOVING FORWARD IN MIS		2.00
1020	IMPACT ON USER ORGANIZATION AND APPROACHES TO PREPARE ENTERPRISE IN MOVING TOWARDS DEVELOPMENT AND IMPLEMENTATION		2.0
1030	FINAL DISCUSSION		1.75

ARTHUR ANDERSEN AG

TÖDISTRASSE 47, POSTFACH

8027 ZÜRICH

TEL. 202 70 20 TELEX 53 800

Mr. Jaime Renart  
United Nations Development Programme  
P.O. Box 644  
11000 Belgrade  
Yugoslavia

March 30, 1979

Subject: UNIDO Contract 77/81  
Project Number DP/YUG/75/021  
Activity Code 10 23 31-4

Dear Mr. Renart:

This letter and attachments are provided to document the field mission conducted in Yugoslavia during February 1979 by Messrs. Bernd Wieczorek, Kent Brooks, Hartwig Kuhl and Ronald Flores of Arthur Andersen & Co., as part of the seminar on Marketing Management - Planning and Reporting Systems.

In brief, meetings were held in Ljubljana and Beograd with representatives from Yugoslav institutes and enterprises as preparation for the seminar to be held in Yugoslavia, from May 7-18, 1979. The attached progress memorandum describes activities performed and agreements reached.

We are now preparing the seminar material and are looking forward to the forthcoming seminar. In addition, a summary methodology manual on Marketing Management has been prepared for translation and distribution to the participants.

ARTHUR ANDERSEN AG

- 2 -

If you should have any questions, please contact us.

Very truly yours,

ARTHUR ANDERSEN & CO. G.M.B.H.  
Wirtschaftsprüfungsgesellschaft  
Steuerberatungsgesellschaft

  
Ronald N. Flores

  
Hartwig Kuhl

ct

Attachments

cc: Mr. Klaus Moll, UNIDO, Vienna  
Mr. D. F. Mant, UNIDO, Vienna  
Mr. Milisav Nikoletić, IEE, Belgrade  
Dr. Slobodan Ristić, Federal Administration  
for International Scientific, Education,  
Cultural and Technical Cooperation  
Prof. V. Tricković, Ekonomski Fakultet, Beograd  
Mr. Walter Tenz, Arthur Andersen & Co., Zurich  
Mr. Bernd Wiczorek, Arthur Andersen & Co.,  
Düsseldorf

bcc: Mr. P. Ehrensperger, Zurich  
Mr. M. Falcotet, Paris  
Mr. J. Habib, Paris  
Mr. U. Hermans, Hamburg  
Mr. M. Häussler, Braun AG

ARTHUR ANDERSEN AG

PROJECT NO. DP/YUG/75/021

MARKETING MANAGEMENT

FIELD MISSION PROGRESS MEMORANDUM

OBJECTIVE AND SCOPE

The objective of this field mission was to assess the Yugoslav industrial and consulting environment relative to the state of marketing planning and reporting activities. Based on this we can establish the link between our experience and the Yugoslav environment, so that the subsequent training seminar to be given in Yugoslavia during the weeks of May 7 and May 14, 1979, will emphasize those topics judged by the Yugoslav representatives to be most relevant.

The scope of our field mission included meetings and discussions with representatives from industrial enterprises and JUCOR institutes as described on Attachment I. On February 16, a presentation was given in Beograd (see Attachment II), where we discussed our findings, had comprehensive discussions on the Yugoslav environment in this function area, and obtained the final agreement on the seminar approach as well as the proposed seminar agenda.

YUGOSLAV ENVIRONMENT CONSIDERATIONS

AND SOME OVERALL OBSERVATIONS

While some differences between Yugoslav and western societies obviously exist in terms of economic environment, state of development, etc., there is an overriding view among the Yugoslavs consulted during the field mission that most of the proven marketing concepts and supporting management systems practiced by western enterprises can be applied in Yugoslavia. This view was also strongly reconfirmed during the panel discussion held in Belgrade on February 16. Therefore, it was urged that the seminar cover those proven techniques. Furthermore, it was recommended by the Yugoslav field mission participants that the seminar establish a theme of encouraging "creativity" in their own practice on the part of the Yugoslav participants and not be held back by restrictions or limitations.



The field mission and related discussions with selected Yugoslav experts underlined the overall need for the Yugoslav institutes to broaden out their respective scope of practice in the marketing area beyond the traditional market analysis area which is frequently the foundation of their practice. Also, there are indications that many of the enterprises could benefit, as well, from council and assistance in this area. It was pointed out further that historically, Yugoslavia enterprises have been more "production" oriented as opposed to being "market" oriented. This balance is gradually shifting, thus the need to further develop skills in the marketing planning and reporting area.

Major changes in the marketing supporting systems approach in Yugoslavia is expected from the new Law of Associated Labor which emphasis among other important things, the further integration between trade, manufacturing and basic sources. Main articles dealing with this objective are articles 5, 72, 86 and others. There is no question that just this area alone presents new challenges and opportunities for Yugoslav consultants, both those associated with institutes as well as those with Yugoslav enterprises. Closely related to this broad area are other provisions of the Act which add to the challenges and opportunities which lie ahead, for example:

- Training in improving the quality of the cadre;
- Increase capability for establishing beneficial links with foreign partners;
- Need to ensure constant rise in income and productivity;
- Development of "income" improvement programs and identification of unsatisfactory results;
- Greater productivity, more efficient and higher quality business.

#### SUMMARY OF MAIN FIELD MISSION FINDINGS

The findings listed below were presented and discussed at the February 16 session. Certain of the findings were expanded to also reflect the experiences of the Yugoslav panel present. These findings in summary form are:

1. Market research function seems to be well developed in the large enterprises. However, there is a need to further develop this activity in the small enterprises.

2. No "panel" (market and consumer profiles and needs) information is readily available in Yugoslavia for use by institutes and enterprises.

3. Sales call reporting is done on a regular basis by many enterprises, although not in the same depth as encountered in western environment.

4. Sales force planning is unstructured.

5. Store display advertising is very limited.

6. Distributors are restricted to non-sales physical distribution functions (see point below).

7. In certain product lines, there is an excess of producers and after sales service functions and networks are limited. Consensus is that while a long-term objective is to develop the image that a product has, built-in quality and "lasts", there are other issues at a higher national economic level which first must be addressed.

8. Pricing tends to be cost based and inflexible. It seems that the economic environment and limits on workers' compensation tend to minimize the direct "flow thru" benefit to the workers as a result of gaining increased market share. Yet, in spite of this, there are more and more enterprises that want to increase their market share and actively pursue this growth.

9. Pricing is not used as a marketing tool as in the west. Yet, one must recognize the differences in the environment.

10. Market share and maximization of return on assets are not major objectives currently.

11. Marketing consulting is largely concentrated in market research.

12. There is limited use of service orientated companies for market expansion.

13. International competition is not encouraged.

14. Sales budgets are developed based upon customer level sales plans; in most cases, better than in the west.

15. Strong marketing profitability analysis and cost accounting capabilities are essential to planned income realizations. While good accounting is generally followed in Yugoslavia, much remains to be done in this area. Therefore, emphasis to be given during seminar.

16. Strong need for consulting assistance in developing marketing planning and reporting systems.

17. Use of computer systems is just beginning. Unlimited potential exists.

18. New product planning and introductions is weakly organized and controlled. Also, exists need for establishing criteria.

19. New product/enterprise development tends to be directed towards import elimination. Consensus is the need to be more aggressive in export generation.

20. Product management and strategic marketing planning is in an emerging stage.

21. Significant demand exists for internal and external marketing training.

#### DISCUSSION ON "MARKETING" CONSULTANTS

##### SERVICES IN YUGOSLAVIA

The marketing of professional services can be patterned after many of the basic concepts used by functional marketing specialists. The same concept can also be applied to the introduction of a new seminar, for example, the Marketing Management Seminar. To that end, a brief discussion was conducted on the following themes and their applicability to the forthcoming seminar:

- Customer Profiling
- Targeting Customers
  - Members of Institutes
  - Enterprises
  - Attendees to Other Seminars
  - Foreign Trade Institutes
- Call Planning and Reporting
- Closing Sales
- Advertising and Promotion
- Pricing
- Market Share/Market Growth Strategies

- Economics of Scale (Promotion, Training, Breadth of Training, etc.)
- Life Cycle
- Product Attribute Analyses
- Definition of Needs and Prioritization
- Product Design
- Prototype Development and Test
- Product Enhancement

#### SEMINAR MATERIAL AND AGENDA

The draft agenda for the seminar was presented and discussed. Modifications to emphasize were suggested and incorporated into the revised seminar agenda which now stands approved (see attachment to this material). Also, as part of this forthcoming seminar a manual summarizing Arthur Andersen & Co.'s methodology in marketing planning and reporting has been prepared and given to Mr. M. Nicoletić for arranging the translation and publication.

The seminar, as agreed, is built around the concepts of product, source and customers as set out in the manual. Also, a guest speaker on developing export markets will participate.

ENTERPRISES CONTACTED DURING  
MARKETING MANAGEMENT FIELD MISSION

(February 7 - 16, 1979)

<u>Date</u>	<u>Enterprise Contacted</u>	<u>Main Discussion Partners</u>
2/7	ITEO, Ljubljana	Mr. S. Mihelić Mr. R. J. Stoković
2/7	Gorenje, Velenje	Mr. M. Gregović
2/8	Lek, Ljubljana	Mr. M. Kline
2/9	Union, Ljubljana	Mr. Tomšić
2/13	IEI, Belgrade	Mr. M. Todoravić
2/14	Zmaj, Belgrade	Mr. Z. Veljović
2/15	BIP, Belgrade	Mr. Z. Nikolić
2/16	Panel Discussion and Presentation on Results of Field Mission	See attached list of Yugoslav and Arthur Andersen & Co. participants

SPISAK UCESNIKA NA PREZENTACIJI NALAZA  
ZA "MARKETING MANAGEMENT" SEMINAR

1. Mirko Todorović, IEI , Beograd
2. Milisav Nikoletić , IEI, Beograd
3. Borivoje Despotović, IEI, Beograd
4. Dimitrije Ginić, IEI, Beograd
5. Jelka Lekić, IEI, Beograd
6. Vidosav Tričković, Ekonomski fakultet Beograd
7. Mića Jovanović, IHTM, Beograd
8. Borislav Uskoković, Institut za društveno ekonomska  
istraživanje, Titograd
9. Kent Brooks, A.A. and Co
10. Ronald Flores, "
11. Berdd Wieczorek "
12. Hartwig Kuhl "

JUCOR - UNIDO

MARKETING MANAGEMENT

DAY ONE - MONDAY, MAY 7, 1979

A G E N D A  
-----

<u>Topic No.</u>	<u>Description</u>	<u>Discussion Leader</u>	<u>Time (Hours)</u>
1	Welcome - Opening Remarks and Objectives of Seminar	M. Nikoletić R. Flores	0.5
2	Report on Field Mission and Discussion on Relevance of Law of Associated Labour	R. Flores	1.0
3	Introduction to Arthur Andersen & Co. - Management Consultancy Practice	R. Flores	0.5
4	Role of Marketing Function: - Historic overview - Major marketing functions - Integration with other business functions - Support of business objectives/income	M. Falcotet	2.0
5	Organization of Marketing Function: - Examples by industry - Cross functional coordination	M. Falcotet	2.0

JUCOR - UNIDO

MARKETING MANAGEMENT

DAY TWO - TUESDAY, MAY 8, 1979

A G E N D A  
-----

<u>Topic No.</u>	<u>Description</u>	<u>Discussion Leader</u>	<u>Time (Hours)</u>
6	Overall Business Planning and Objectives Setting	R. Flores	2.0
7	Strategic Marketing Planning: <ul style="list-style-type: none"><li>- Strategic planning concepts</li><li>- Marketing planning cycles</li><li>- Organization and management of planning</li><li>- Strategic planning function</li></ul>	M. Falcotet	2.0
8	Market Expansion Strategies: <ul style="list-style-type: none"><li>- Market resegmentation</li><li>- Intermediary sales service organizations</li><li>- Export generation</li><li>- Increased customer service and training</li><li>- Advertising</li></ul>	M. Falcotet	2.0



JUCOR - UNIDO

MARKETING MANAGEMENT

DAY THREE - WEDNESDAY, MAY 9, 1979

A G E N D A

-----

<u>Topic No.</u>	<u>Description</u>	<u>Discussion Leader</u>	<u>Time (Hours)</u>
9	Marketing Planning and Reporting Chart: - Product - Sales - Service	R. Flores	2.0
10	Sales Management: - Sales channel planning - Territory planning - Call reporting - Merchandising - Customer management	U. Hermans	3.0
11	World-Wide Marketing System Survey 1977/1978: - Introduction - Class participation in survey	R. Flores	1.0

JUCOR - UNIDO

MARKETING MANAGEMENT

DAY FOUR - THURSDAY, MAY 10, 1979

A G E N D A  
-----

<u>Topic No.</u>	<u>Description</u>	<u>Discussion Leader</u>	<u>Time (Hours)</u>
11	World-Wide Marketing System Survey 1977/1978 (cont'd): - Results of overall survey - Yugoslav perspective	R. Flores	2.0
12	Distribution Control System - Discuss' n of computer based order processing system	U. Hermans	3.0
13	Introduction to Information Processing for Marketing Reporting System	R. Flores	1.0

JUCOR - UNIDO

MARKETING MANAGEMENT

DAY FIVE - FRIDAY, MAY 11, 1979

A G E N D A  
-----

<u>Topic No.</u>	<u>Description</u>	<u>Discussion Leader</u>	<u>Time (Hours)</u>
14	Physical Distributor	P. Ehrensperger	2.0
15	Marketing Analysis System - Discussion of actual marketing reporting system	P. Ehrensperger	3.0

JUCOR - UNIDO

MARKETING MANAGEMENT

DAY SIX - MONDAY, MAY 14, 1979

A G E N D A  
-----

<u>Topic No.</u>	<u>Description</u>	<u>Discussion Leader</u>	<u>Time (Hours)</u>
16	Merchandising Management Techniques: <ul style="list-style-type: none"><li>- Planning</li><li>- Classification reporting</li><li>- Sales registration</li><li>- Purchase order management</li><li>- Unit systems</li></ul>	P. Ehrensperger	3.0
17	Product Management: <ul style="list-style-type: none"><li>- Key concepts</li><li>- New product development and introduction</li><li>- Organization and development of product management</li></ul>	J. Habib	3.0

JUCOR - UNIDO

MARKETING MANAGEMENT

DAY SEVEN - TUESDAY, MAY 15, 1979

A G E N D A  
-----

<u>Topic No.</u>	<u>Description</u>	<u>Discussion Leader</u>	<u>Time (Hours)</u>
18	Conducting a Management Review of Marketing Function (Case Study)	J. Habib	4.0
19	Forecasting and Demand Planning Techniques	H. Kuhl	2.0

JUCOR - UNIDO

MARKETING MANAGEMENT

DAY EIGHT - WEDNESDAY, MAY 16, 1979

A G E N D A  
-----

<u>Topic No.</u>	<u>Description</u>	<u>Discussion Leader</u>	<u>Time (Hours)</u>
20	Approach to Marketing Systems Development and Installation	H. Kuhl	3.0
21	Marketing Consulting Services in Yugoslavian Environment - Group Presentation Discussion	R. Flores	3.0
22	Proven Systems Project Management Techniques	H. Kuhl	2.0

JUCOR - UNIDO

MARKETING MANAGEMENT

DAY NINE - THURSDAY, MAY 17, 1979

A G E N D A  
-----

<u>Topic No.</u>	<u>Description</u>	<u>Discussion Leader</u>	<u>Time (Hours)</u>
23	Marketing Profitability Analysis: <ul style="list-style-type: none"><li>- Sources of information</li><li>- Marketing chart of accounts</li><li>- Reporting and analysis concepts</li><li>- Average vs. marginal costing</li><li>- Marketing controller</li><li>- Case examples</li></ul>	B. Wieczorek	2.0
24	Profitability Analysis: <ul style="list-style-type: none"><li>- Case examples</li><li>- Group exercise</li></ul>	B. Wieczorek	2.0
25	Customer Service Planning and Control	B. Wieczorek	2.0

JUCOR - UNIDO

MARKETING MANAGEMENT

DAY TEN - FRIDAY, MAY 18, 1979

A G E N D A

-----

<u>Topic No.</u>	<u>Description</u>	<u>Discussion Leader</u>	<u>Time (Hours)</u>
26	Developing International Export Markets	M. Häussler, Director of International Marketing - Braun, AG	4.0
27	Final Discussion and Closing Remarks	R. Flores M. Nikoletić	1.0



ARTHUR ANDERSEN & Co.

JUCOR - SEMINAR ON MARKETING MANGEMENT SYSTEMS  
MANUAL ON MARKETING PLANNING AND REPORTING

<u>Subject</u>	Effective Date May 7, 1979	
	Version 0	Page INDEX I

INDEX

	<u>PAGE</u>
INTRODUCTION	0-1
MANAGEMENT PERSPECTIVE .	I-1
- Need for Marketing Information	
- Management Objectives and Typical Systems Problems	
- Benefits	
ARTHUR ANDERSEN & CO MARKETING PLANNING AND REPORTING PRACTICE -- PLANNING CHART APPROACH	II-1
- Product Management	
- Sales Management	
- Customer Service	
- Overall Systems Schematics	
ORGANIZATION OF THE MARKETING FUNCTION	III-1
OVERALL SYSTEMS CONCEPTS	IV-1
- Key Concepts	
- Planning	
- Performance Reporting	

ARTHUR ANDERSEN & Co.

JUCOR - SEMINAR ON MARKETING MANGEMENT SYSTEMS  
MANUAL ON MARKETING PLANNING AND REPORTING

<u>Subject</u>	Effective Date May 7, 1979	
	Version 0	Page INDEX II

	<u>PAGE</u>
PRODUCT MANAGEMENT SYSTEMS DESIGN CONCEPTS	V-1
- Product Line Planning and Reporting	
- Pricing	
- Sales Forecasting	
- Advertising	
- Promotions	
SALES MANAGEMENT SYSTEMS DESIGN CONCEPTS	VI-1
- Sales Channels	
- Customer Profiling	
- Sales Territory Management	
- Supporting Distributors	
CUSTOMER SERVICE SYSTEMS DESIGN CONCEPTS	VII-1
- Types of Service Policies	
- Monitoring Performance and Costs	
- Physical Distribution	
COMPUTER SYSTEM OVERVIEW	VIII-1

ARTHUR ANDERSEN AG

Mr. Jaime Renart  
United Nations Development Programme  
P.O.Box 644  
11000 Belgrade  
Yugoslavia

TÖDISTRASSE 47, POSTFACH  
8027 ZÜRICH  
TEL.2027020 TELEK 53800

July 3rd, 1979

Subject: UNIDO Contract 77/81  
Project Number DP/YUG/75/021  
Activity Code 10 23 31-4

Dear Mr. Renart:

This letter and attachments are provided to document the field mission conducted in Yugoslavia in June, 1979 by Messrs. Roy Harmon, Dave Nelleman and Ronald Flores of Arthur Andersen & Co., as part of the seminar on Production Management - Planning and Reporting Systems.

In brief, meetings were held in Ljubljana and Zagreb with representatives from Yugoslav institutes and enterprises as preparation for the seminar to be held in Yugoslavia, from November 5-16, 1979. In addition, we also met with Intertrade (IBM) representatives concerning possible Computer support for some of the student case problems. The attached progress memorandum describes activities performed and agreements reached.

We are now preparing the seminar material and are looking forward to the forthcoming seminar. In addition, a summary glossary on Production Management terms is being prepared for translation and distribution to the participants.

If you should have any questions, please contact me at your convenience.

Very truly yours,  
ARTHUR ANDERSEN A.G.

By



Ronald N. Flores

CP

ARTHUR ANDERSEN AG

- 2 -

Attachments

cc.: Mr. Klaus Moll, UNIDO, Vienna  
Mr. D.F. Mant, UNIDO, Vienna  
Mr. Milisav Nikoletić, IEE, Belgrade  
Dr. Slobodan Ristić, Federal Administration for International  
Scientific, Education, Cultural and Technical Cooperation.  
Mr. Walter Tenz, Arthur Andersen A.G., Zurich  
Mr. Hartwig Kuhl, Arthur Andersen & Co., Hamburg  
Mr. Roy Harmon, Arthur Andersen & Co., Chicago  
Mr. David Nellesmann, Arthur Andersen & Co., Chicago  
Mr. Steven DuMont, Arthur Andersen & Co., St. Charles (Professional  
Education Division)  
Mr. Andrej Podgorsek, Intertrade  
Mr. Z. Vrecek, Intertrade

CP

# ARTHUR ANDERSEN AG

PROJECT NO. DP/YUG/75/021

PRODUCTION MANAGEMENT

FIELD MISSION PROGRESS MEMORANDUM

## OBJECTIVE AND SCOPE

The objective of this field mission in Production Management was to assess the Yugoslav industrial and consulting environment relative to the state of production management activities. Based on this, we can establish the link between our experience and the Yugoslav environment, so that the subsequent training seminar to be given in Yugoslavia during the weeks of November 5 and November 12, 1979, will emphasize those topics judged by the Yugoslav representatives and ourselves to be most relevant.

The scope of our field mission included meetings and discussions with representatives from industrial enterprises, Intertrade and JUCOR institutes as described on Attachment I. On June 15, a presentation was given in Zagreb (see Attachment II), where we discussed our findings, had comprehensive discussions on the Yugoslav environment in this function area, and obtained the final agreement on the seminar approach as well as the proposed seminar agenda.

## SUMMARY OF MAIN FIELD MISSION FINDINGS

The observations outlined below were presented and discussed at the June 15 group session. These findings in summary form are based, as planned, on the present practices and plans of some of the more advanced Yugoslav enterprises (medium size to large) relative to computer-based manufacturing control systems.

1. The needs in Yugoslavia for improving the state of manufacturing control systems, as well as the opportunities for major improvements in such areas as better use of production resources and inventory investment, better customer service, etc., parallel our experiences in working with enterprises in the West. In other words the problems and potential benefits related to manufacturing planning and reporting are generally the same world-wide.
2. Each of the Yugoslav enterprises visited has plans for upgrading their present manufacturing control systems as well as to make greater use of the computer in this regard. Some were planning to upgrade their existing central facility while in most cases they have plans to make greater use of minicomputers. Overall, it seems these selected enterprises are heading in the right direction based on our experiences to date.

## ARTHUR ANDERSEN AG

3. On the other hand, we find that the visited Yugoslav enterprises are operating with manufacturing control systems which are lagging behind the business needs of their enterprises. Considering the complexity and many inter-relationships of the manufacturing processes visited, we see an urgent need for more comprehensive manufacturing control systems. Enterprises in other countries having about the same size manufacturing processes would have more advanced systems in place.
4. A major contributing factor to the above is that these enterprises visited typically have a smaller computer configuration than comparative enterprises elsewhere.
5. The Yugoslav enterprises are clearly moving in the application of advanced concepts including:
  - a) Larger central computers
  - b) On line processing
  - c) Distributed processing and distributed data bases
  - d) Technical skills upgrade programs.
  - e) Use of application software in the production planning and inventory control areas.
  - f) Following a step-by-step, pilot approach to systems development.
6. There are certain areas for improvement in the existing manufacturing control systems. Most important areas identified based on the field mission visits are:
  - a) Material requirements planning (MRP) - including greater use of such features as "netting" at all levels, lead time offsets, and more frequent determination of requirements (tends to be more towards bi-weekly to monthly, versus weekly in comparable enterprises. Also, improvements needed to achieve greater computer processing efficiency although smaller computer configuration has impact here as well.
  - b) Parts shortage anticipation and reporting - here we see the need for improved tools to look ahead to identify forthcoming problems and tools for dealing with them.
  - c) Further development of product costing and cost performance measures, and close integration into the production planning and reporting system.
7. New areas not generally integrated as a part of existing systems in the Yugoslav enterprises, but planned are:
  - a) Scheduling
  - b) Capacity planning

## ARTHUR ANDERSEN AG

8. Certain unique features were noted during these field mission visits and were discussed at length with the panel on June 15. For example:
  - a) From what we were told at the different enterprises, there exists good data accuracy and reliability from the factory floor and stores areas. Apparently, these disciplines, if indeed well followed, will be extremely useful in moving towards improved systems. While our experience in other countries shows this to still be a major problem area (reliable source data reporting) we understand that a factor for this exception in Yugoslavia is the fact that an enterprise typically is made up of a number of basic organizations (OOUR's) and the transfer of inventory between these organizations is well controlled. (However, during the June 15 panel discussion, there was some discussion by the Yugoslav participants as to indeed whether the present state of source data reporting is really as accurate and reliable as indicated during the visits.)
  - b) Good awareness on the part of the enterprise representatives as to the need for change and a positive open mindedness for making improvements. (This is an excellent and essential ingredient for moving forward.)
  - c) We found that the organization and EDP departments are typically a centralized group in the enterprise and have much more influence in systems and related matters than their counterparts in the US and Western Europe. Yet, we noted that in the Yugoslav enterprises steps are being taken to upgrade the role of the users in this area of systems needs, development and use. This is a good development and should be further encouraged. However, it carries the responsibility of providing user training and other aids to equip them to handle their increased role.
  
9. It was determined that to date the visited enterprises have made only little use of outside consultants (Jugoslav Institutes not part of the enterprise structure). Their main reasons are those which have been previously raised and discussed extensively with JUCOR members. In this case the reasons given were that the Institutes had limited "hands on" skills and practical experience compared to the enterprises themselves in the following:
  - a) Manufacturing control systems involving advanced tools and techniques
  - b) Computer processing
  - c) Systems installation experience

## ARTIUR ANDERSEN AG

10. It is based on this need, as well as other identified needs, that the UNIDO/JUCOR training was undertaken and modified as the program went on; i.e. add seminars on Production Management and EDP., and give emphasis to "how to" type training, as practical.
11. In looking ahead we see outstanding opportunities for Yugoslav consultants in a broad range of areas in the manufacturing control systems area including greater use of computer processing. The needs of Yugoslavia enterprises are great and will grow; both in terms of systems development and installation assistance, as well as in user training. Furthermore, with the plans for manufacturing minicomputers in Yugoslavia under licence in the future, there will be a great gap to be filled. We understand the following hardware is being considered for future assembly in Yugoslavia. (Not official nor necessarily complete.):

- DEC
- HONEYWELL
- CONTROL DATA
- IBM (perhaps in future)

### SCOPE OF MANUFACTURING SYSTEMS PRACTICE AND WORLDWIDE TRENDS

A summary overview of the scope of manufacturing planning and reporting systems was presented and each of the modules, as outlined below, were discussed:

#### ENGINEERING DATA MANAGEMENT

Design Engineering  
Manufacturing Engineering

#### MANUFACTURING MANAGEMENT PLANNING

Customer order processing  
Forecasting and demand planning  
Product planning  
Master production scheduling

#### INVENTORY MANAGEMENT

Inventory control  
Material requirements planning  
Purchasing

#### OPERATIONS MANAGEMENT

Capacity planning  
Operations scheduling  
Shop floor control

#### COST MANAGEMENT

Cost control  
Inventory accounting



# ARTHUR ANDERSEN AG

In addition, world trends taking place in the manufacturing control area were discussed. These trends dealt with the following:

## MANAGING CHANGE

Computerization  
MRP-Net change

## SHOP FLOOR CONTROL

Data collection  
Group technology

## MANUFACTURING SOFTWARE

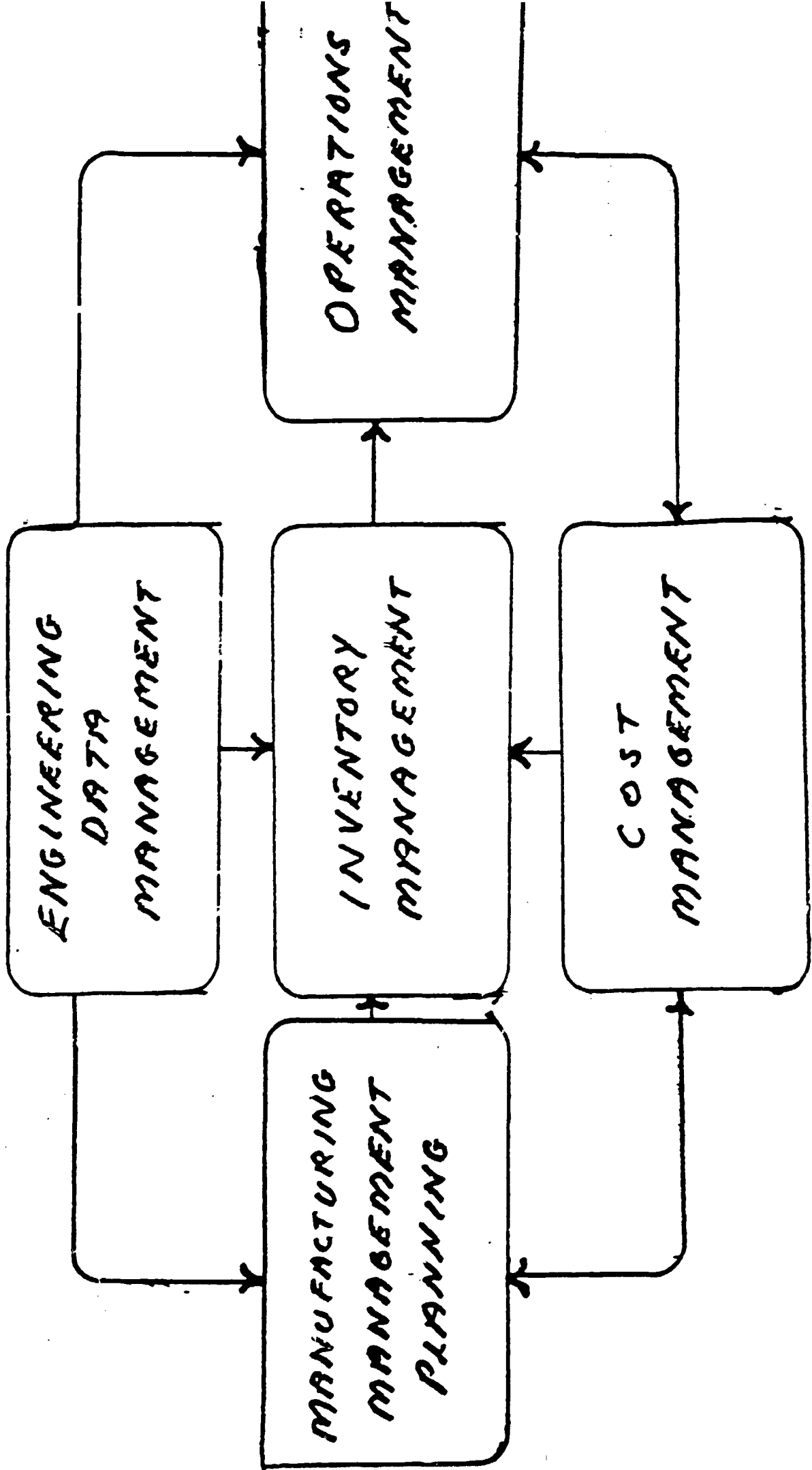
Common systems  
Real time

## DISTRIBUTED SYSTEMS

Mini computers  
Organization

## EDUCATION

MANUFACTURING SYSTEMS



# ARTHUR ANDERSEN AG

## SEMINAR APPROACH AND FORMAT

The Production Management Seminar will be conducted in Bled, Yugoslavia from November 5 through 16, 1979. (Hotel and other arrangements being handled by JUCOR representatives.)

The objectives of this seminar were presented during the June 15 discussion, and centered around helping the participants to:

1. Improve understanding
2. Improve skills
  - a) Identify opportunities for systems improvements
  - b) Getting started in doing consulting in the manufacturing controls area or in improving effectiveness
  - c) Design appropriate systems
  - d) Evaluate application software
  - e) Install improved methods and help make them work

The seminar approach and format, as discussed and agreed with the JUCOR representatives, will be in a manner followed for previous seminars. Therefore, included will be:

1. Emphasis on practical applications
2. Use of experienced instructors
3. Coverage - various techniques
  - a) Presentations
  - b) Group discussions
  - c) Short problems
  - d) Case studies with computer orientation (supported by Intertrade - see below)-

In addition, the seminar will be structured as follows:

1st two days - Overview of manufacturing planning and control which should be of great interest to the directors of JUCOR institutes, and enterprise managers at the complex and work organization levels.

Next eight days - Building on the frame established during the overview sessions, this portion of the seminar will go into each of the subjects in detail drawing heavily on cases, presentations, problems and discussions. The participants for the entire two weeks should be representatives from consulting (Institutes), manufacturing, engineering and systems including data processing. A certificate of successful attendance will be issued to all full time participants.

## SEMINAR AGENDA

Outlined below is the topic content discussed and approved during the June 15 meeting. (Also see Attachment III for more complete description.)

# ARTHUR ANDERSEN AG

## MANAGEMENT PERSPECTIVE (days 1 and 2)

- Management overview
- Business planning
- Production planning
- Master scheduling
- Engineering
- Material requirements planning
- Inventory control
- Capacity requirements planning
- Shop floor control
- Purchasing
- Cost and inventory accounting
- Management performance measurement
- Action plan development
- Implementation, costs and benefits
- Recent developments
- Manufacturing software

## DETAILED COURSE (days 3 through 10)

<u>TOPIC</u>	<u>AID</u>
- Production planning	Problem
- Master scheduling	
- Engineering	Computer case problem
- Material requirements planning	Problem
- Inventory control	Computer case problem
- Capacity requirements planning	Harvard case problem
- Shop floor control	
- Purchasing	
- Cost and inventory accounting	
- Management performance measurement	
- Develop action plan	
- Implementation, costs + benefits	
- Recent developments	
- Manufacturing software	
- Summary	

# ARTHUR ANDERSEN AG

## INTERTRADE (IBM) ASSISTANCE

During the early planning for this forthcoming seminar, I suggested to JUCOR representatives that Intertrade might be prepared to help in providing computer support for the seminar case problems. Intertrade was contacted by JUCOR and has been very cooperative in our initial meetings as well as in arranging some of the field mission visits.

They will make their IBM 370/148 computer available for processing the student case problems and will provide, as needed, other support, including visual aids, etc. While Intertrade has a training facility near Bled, they suggested that the seminar be conducted at one of the hotel's in Bled because it would be more suitable for this type of seminar.

Arthur Andersen will modify their computer programs for the student case study to make them suitable for IBM 370/148 processing. We look forward to working with them and in their continued cooperation. As the planning proceeds both JUCOR and ourselves should be in touch with Intertrade.

ARTHUR ANDERSEN AG

ATTACHMENT I

YUGOSLAV ENTERPRISES AND INSTITUTES  
CONTACTED DURING PRODUCTION-MANAGEMENT

FIELD MISSION -- JUNE 6 - 15, 1979

<u>DATE</u>	<u>ENTERPRISES/INSTITUTES</u>	<u>MAIN DISCUSSION PARTNERS</u>
June 6	Zelezarna Ravne	Messrs. M. Pesl and F. Jamnik
June 7 am	Intertrade-Ljubljana	Messrs. A. Podgorsek, Z. Vrecek and D. Vovk
June 7 pm	Intertrade-Lubljana	Messrs. F. Kuhar and Pivk
June 8	Lisca (Sevnica)	Mr. S. Senica
June 12	Zavod za produktivnost	Messrs. R. Bakrac and Prof. Rovesnjak
June 13	Rade Koncar (Zagreb)	Mr. Josip Brumec
June 14	Prvomajska Institut Za Alatne Strojeve	Messrs. Vranes, A. Polic and I. Karabaic
June 15	Group discussion and presentation of field mission findings, seminar approach and topic content.	See Attachment II for list of Yugoslav and Arthur Andersen & Co.'s participants.

PARTICIPANTS AT SUMMARY SESSION, ZAGREB

JUNE 15, 1979

INSTITUTES

<u>NAMES</u>	<u>ORGANISATIONS</u>
Milisav Nikoletic	JUCOR + IEI
Dr. Stanko Turk	Elektrotehnicki Fakultet ETF, Zagreb
Ivo Karabaic	Prvomajska
Radovan Bakrac	Zavod za produktivnost
Nladen Roverujak	Zavod za produktivnost
Slavko Mrisoci	Zavod za produktivnost
Muraj Zdravko	Zavod za produktivnost
Vuckovic Bogoloub	Zavod za produktivnost

ARTHUR ANDERSEN & CO.

Ronald Flores  
David Nellemann  
Roy Harmon  
Steven DuMont

PRODUCTION MANAGEMENT

TOPIC SUMMARIES

- MANAGEMENT OVERVIEW

Presents management opportunities and responsibilities for improving profit, cost and investment performance through effective use of a close-loop manufacturing system.

- BUSINESS PLANNING

Describes how to incorporate management's strategy into the market, product and functional plans required to meet sales, income and investment objectives.

- PRODUCT PLANNING

Shows how to translate the objectives of marketing, manufacturing and finance plans into a formal production plan that determines production rates and resources required to meet the sales forecast and inventory plan.

- MASTER SCHEDULING

Discusses how to allocate the production planning rates and resources to specific product build schedules that are the basis for planning material and capacity requirements.

- ENGINEERING

Explains the importance and uses of bills of material and routings and shows why accurate engineering input is the foundation of the manufacturing planning and control system.

- MATERIALS REQUIREMENTS PLANNING

Demonstrates how the Master Schedule functions with a time-phased priority planning system to provide answers to the questions of what, how much, and when to order material.

- INVENTORY CONTROL

Focuses on the need and methods for maintaining accurate on-hand and on-order status and describes the costs and benefits of improved inventory management.



# ARTHUR ANDERSEN AG

## - CAPACITY REQUIREMENTS PLANNING

Shows how material and capacity requirements are coordinated to plan effectively and to use the manufacturing resources required to make the Master Schedule.

## - SHOP FLOOR CONTROL

Discusses how manufacturing executes the plan by monitoring shop capacity and maintaining production order priorities to meet delivery, quality and productivity objectives.

## - PURCHASING

Discusses the importance of purchasing's role in executing the plan by monitoring vendor capacity and maintaining purchase order priorities to meet delivery, quality and cost objectives.

## - COST AND INVENTORY ACCOUNTING

Explains how the manufacturing and financial systems can be integrated to use the same set of books to measure inventory flows and balances.

## - PERFORMANCE MEASUREMENT

Focuses on the importance of accountability and outlines methods for measuring management performance.

## - SYSTEM IMPLEMENTATION

Presents specific management prerequisites along with proven system implementation approaches to help management develop a plan best suited to its needs.



