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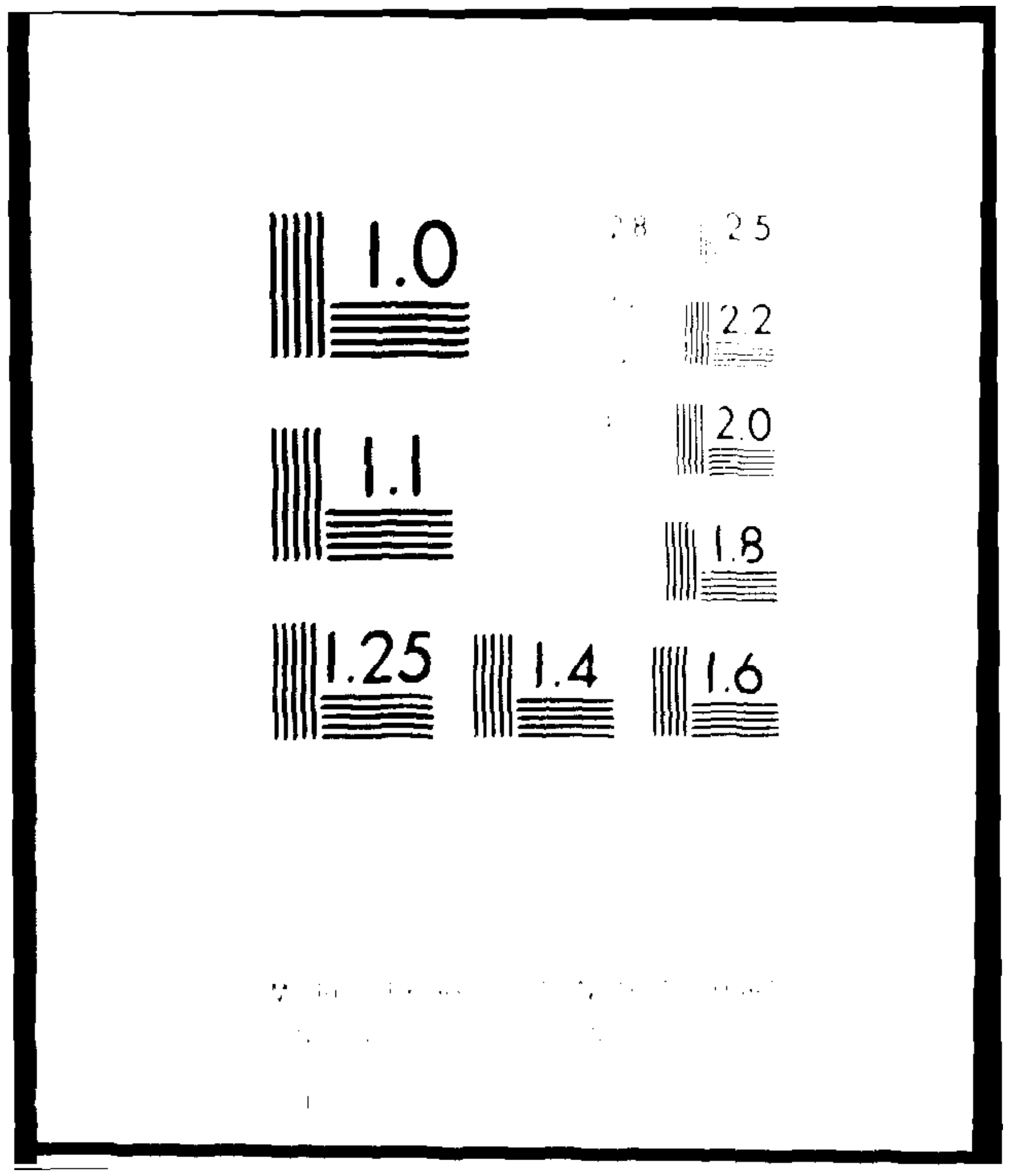
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CORPORATE PLANNING

FOLLOW UP MISSION.

YUGOSLAV CENTER FOR

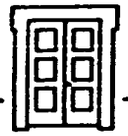
ORGANIZATION AND DEVELOPMENT. / DP/YUG/75/021 /

MARCH 6, 1980

ARTHUR ANDERSEN AG

FOLLOW-UP MISSION

DUBROVNIK, MARCH 6, 1980



A G E N D A

TOPIC NO.	DESCRIPTION	DISCUSSION LEADER	TIME (HOURS)
1	INTRODUCTORY REMARKS	MILISAV NIKOLETIC RONALD N. FLORES	0.50
2	RECAP OF PLANNING METHODOLOGY	HARTMANN KNORR	
	- ORGANIZATION AND RESPONSIBILITIES		0.50
	- SEQUENCE OF STEPS		0.50
	- PORTFOLIO CONCEPT		1.00
3	DISCUSSION: RELEVANCE OF PORTFOLIO CONCEPT TO YUGOSLAVIA	RONALD N. FLORES	0.75
4	COMPUTER SUPPORT FOR MANAGEMENT DECISIONS	HARTMANN KNORR	
	- ORGANIZATIONAL ASPECTS		0.50
	- AA&CO. CASE STUDY		1.50
5	DISCUSSION: WHICH BUSINESS DECISIONS WOULD BENEFIT FROM COMPUTER SUPPORT?	HARTWIG KUHL HARTMANN KNORR	0.75
	T O T A L		6.00

STRATEGIC PLANNING ASPECTS

- DECISIONS TAKE YEARS TO BECOME EFFECTIVE, MORE YEARS TO PAY OFF

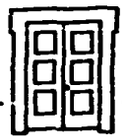
- WHAT SHOULD THE BUSINESS BE
  - -- FIRST ASSUMPTION--IT SCHOULD BE DIFFERENT

- ULTIMATE OBJECTIVE
  - -- IDENTIFY NEW AND DIFFERENT BUSINESS, TECHNOLOGIES, MARKETS, WHICH THE COMPANY SHOULD TRY TO CREATE IN THE LONG RANGE
  - -- WHICH PRESENT BUSINESS SHOULD WE ABANDON?

STRATEGIC PLANNING

I T I S N O T :

- NOT MODELS OR COMPUTERS
  - -- QUANTIFICATION USED ONLY TO MAKE SURE THAT ONE DOES NOT DECEIVE ONESELF
- NOT FORECASTING
  - -- FUTURE IS UNPREDICTABLE
- DOES NOT DEAL WITH FUTURE DECISIONS
  - -- SYNCHRONIZES INTO ONE PRESENT VIEW A GREAT NUMBER OF DIVERGENT TIME SPANS
- NOT AN ATTEMPT TO ELIMINATE RISK OR EVEN TO MINIMIZE, BUT
  - -- TO TAKE THE RIGHT RISKS



STRATETIC PLANNING (CONT'D.)

I T I S :

- CONTINOUS PROCESS OF MAKING ENTREPRENEURIAL DECISIONS SYSTEMATICALLY
- ORGANIZING EFFORT TO CARRY OUT THESE DECISIONS
- MEASURING RESULTS AGAINST EXPECTATIONS THROUGH ORGANIZED FEEDBACK

TEN CRITICAL AREAS OF PLANNING

1. PRIMARY PURPOSE OF PLAN--TO HELP AUTHOR MANAGE HIS OPERATION

2. SECOND PURPOSE--TO ESTABLISH A MUTUALLY AGREED-ON COMMITMENT BETWEEN AUTHOR AND HIS MANAGEMENT

3. PLAN MUST HAVE STRATEGIC FOCUS--TO ACCOMPLISH ENDURING OBJECTIVES WITHIN A DYNAMIC ENVIRONMENT

4. PLAN MUST DEVELOP AWARENESS OF OPTIONS AND THEIR LIKELY CONSEQUENCES

5. PLAN MUST BE BASED ON SUFFICIENT INFORMATION TO BE CREDIBLE

TEN CRITICAL AREAS OF PLANNING (CONT'D.)

6. PLAN MUST BRING TO SURFACE THE CRITICAL ISSUES AND CHOICES

7. PLAN MUST BE LINKED TO SYSTEM FOR ALLOCATING AND COMMITTING CAPITAL FUNDS

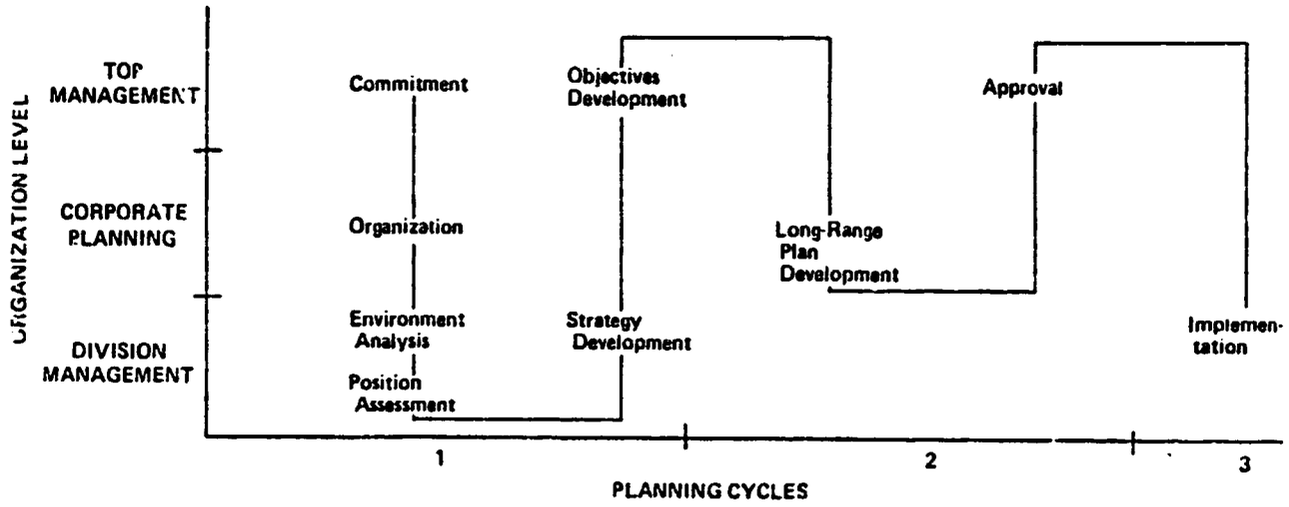
8. PLAN MUST KEEP PAPERWORK MANAGEABLE

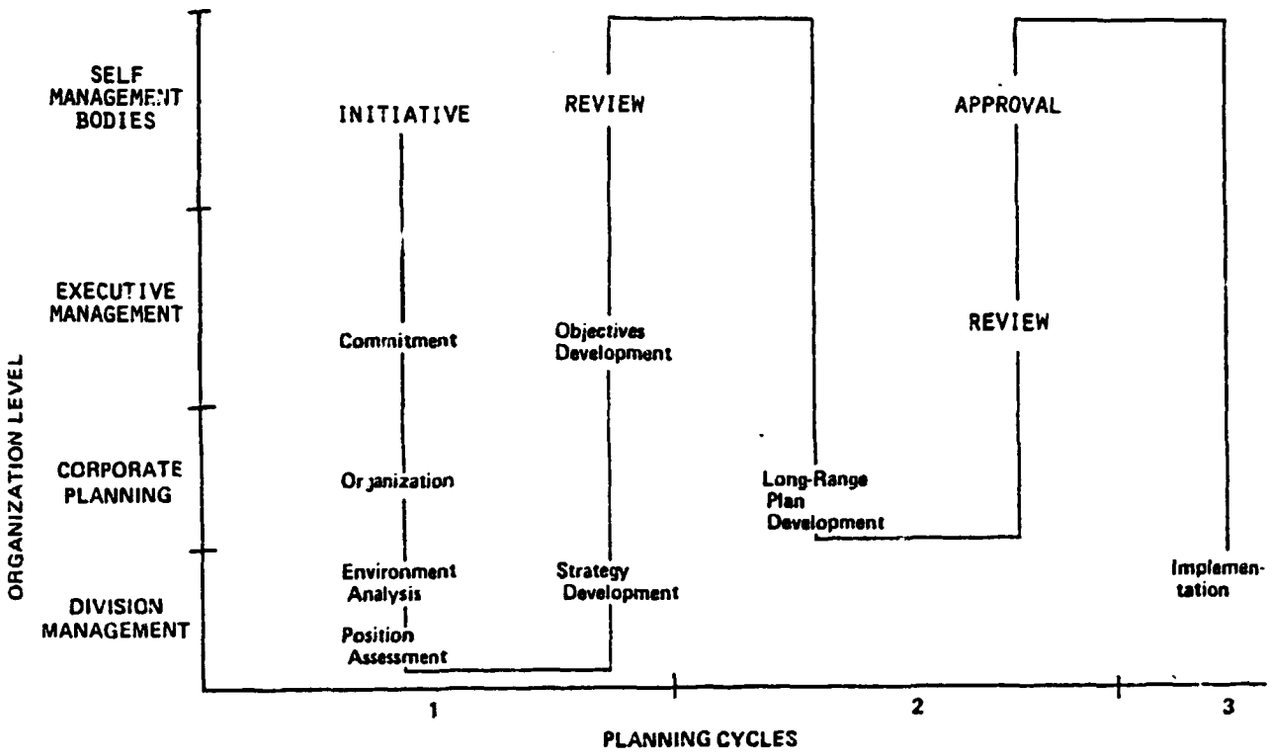
9. PLAN MUST ACCOMMODATE A VARIETY OF PLANNING AND MANAGEMENT STYLES

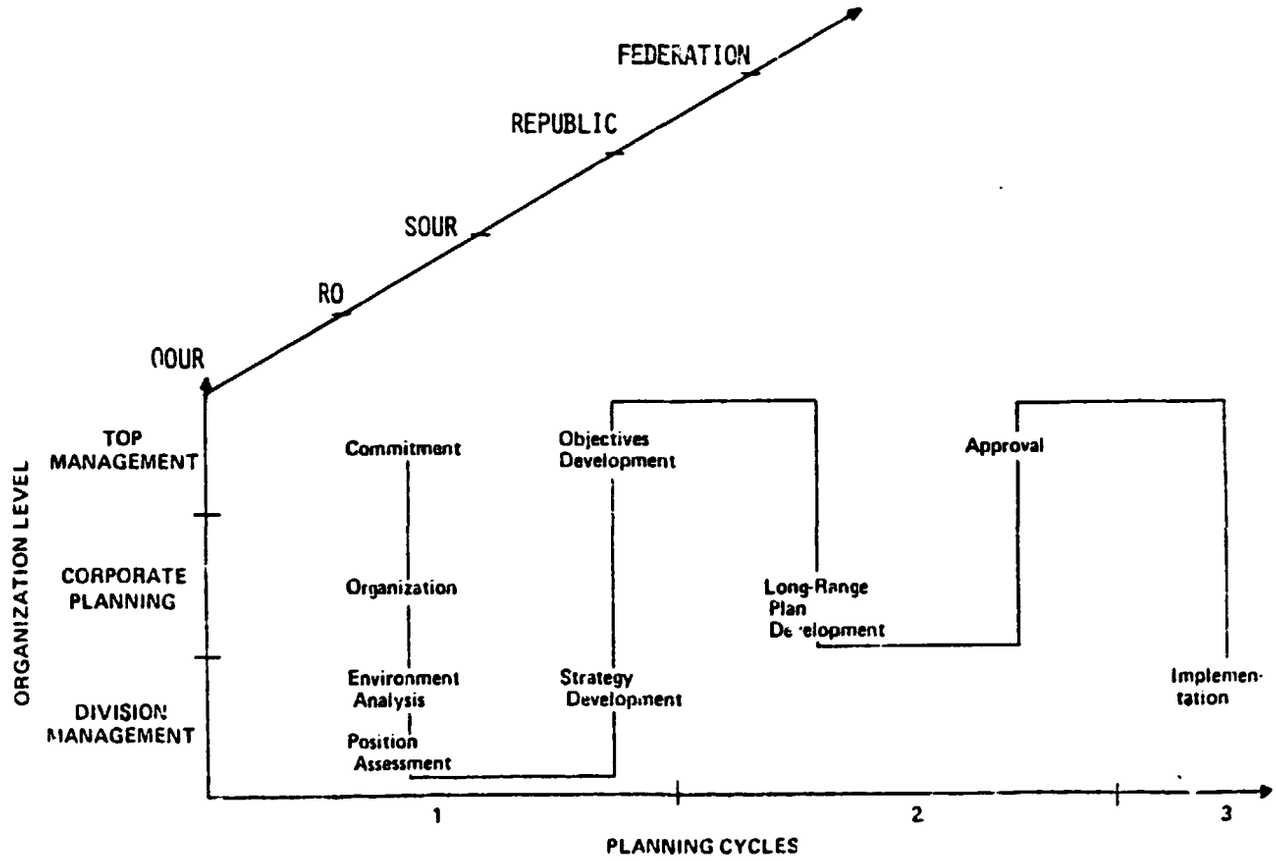
10. PLANNING MUST BE WOVEN INTO THE FABRIC OF ORGANIZATION

FORECASTS, GOALS AND PLANS

FORECASTS	-	DEFINE WHAT MAY HAPPEN UNDER GIVEN ASSUMPTIONS
OBJECTIVES AND GOALS	-	DEFINE WHAT SHOULD HAPPEN
PLANS	-	ARE MADE TO CONFIRM THAT OBJECTIVES CAN BE MET


ORGANIZATION LEVEL
TOP MANAGEMENT
CORPORATE PLANNING
DIVISION MANAGEMENT
Commitment
Organization
Environment Analysis
Position Assessment
Objectives Development
Strategy Development
Long-Range Plan Development
Approval
Implementation
1
2
3
PLANNING CYCLES


SELF MANAGEMENT BODIES
EXECUTIVE MANAGEMENT
CORPORATE PLANNING
DIVISION MANAGEMENT
ORGANIZATION LEVEL
INITIATIVE
REVIEW
APPROVAL
Commitment
Objectives Development
REVIEW
Organization
Long-Range Plan Development
Environment Analysis
Strategy Development
Implementation
Position Assessment
1
2
3
PLANNING CYCLES


FEDERATION
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TOP MANAGEMENT
CORPORATE PLANNING
DIVISION MANAGEMENT
Commitment
Organization
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Position Assessment
Objectives Development
Strategy Development
Long-Range Plan Development
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Implementation
1
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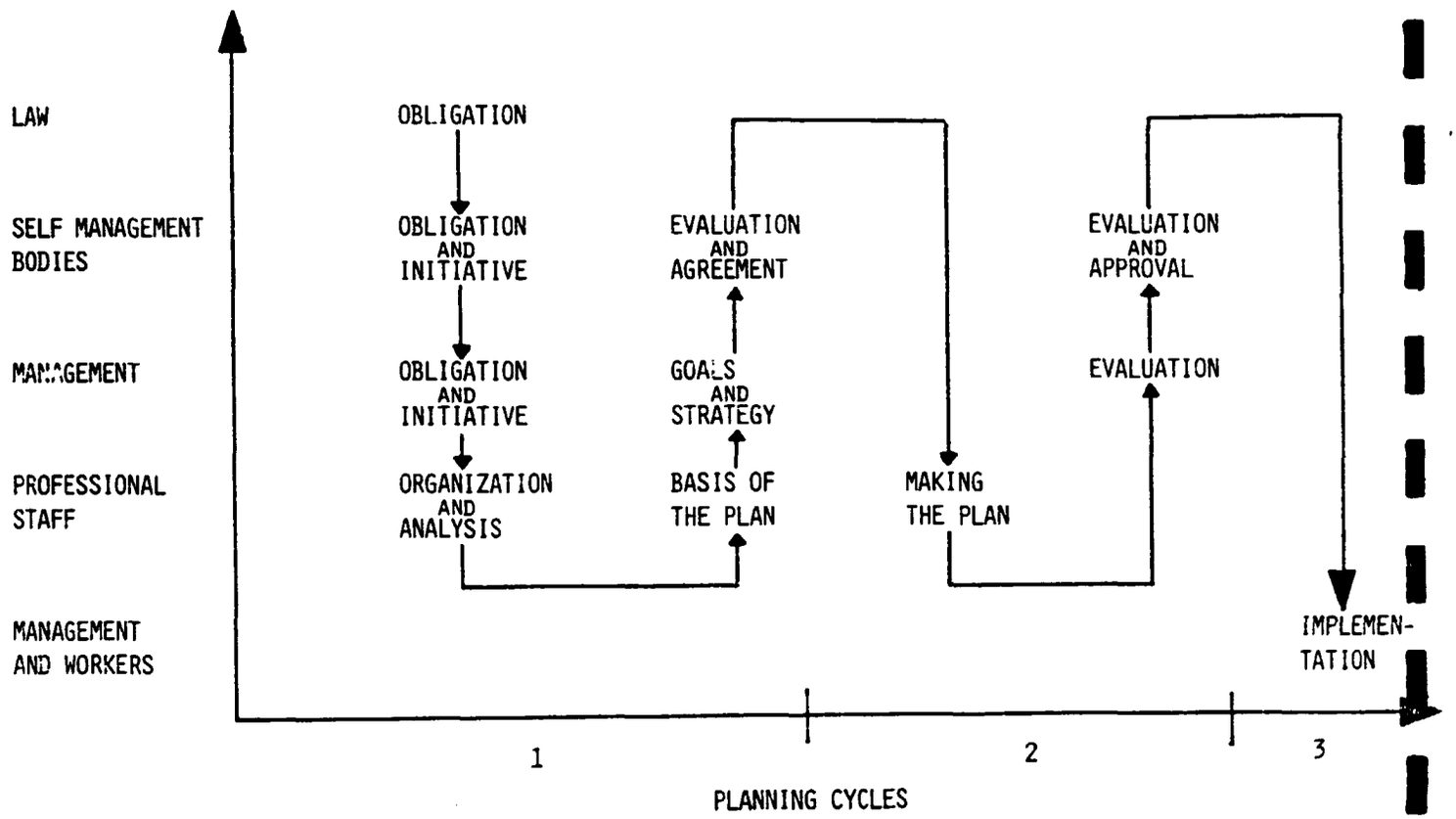
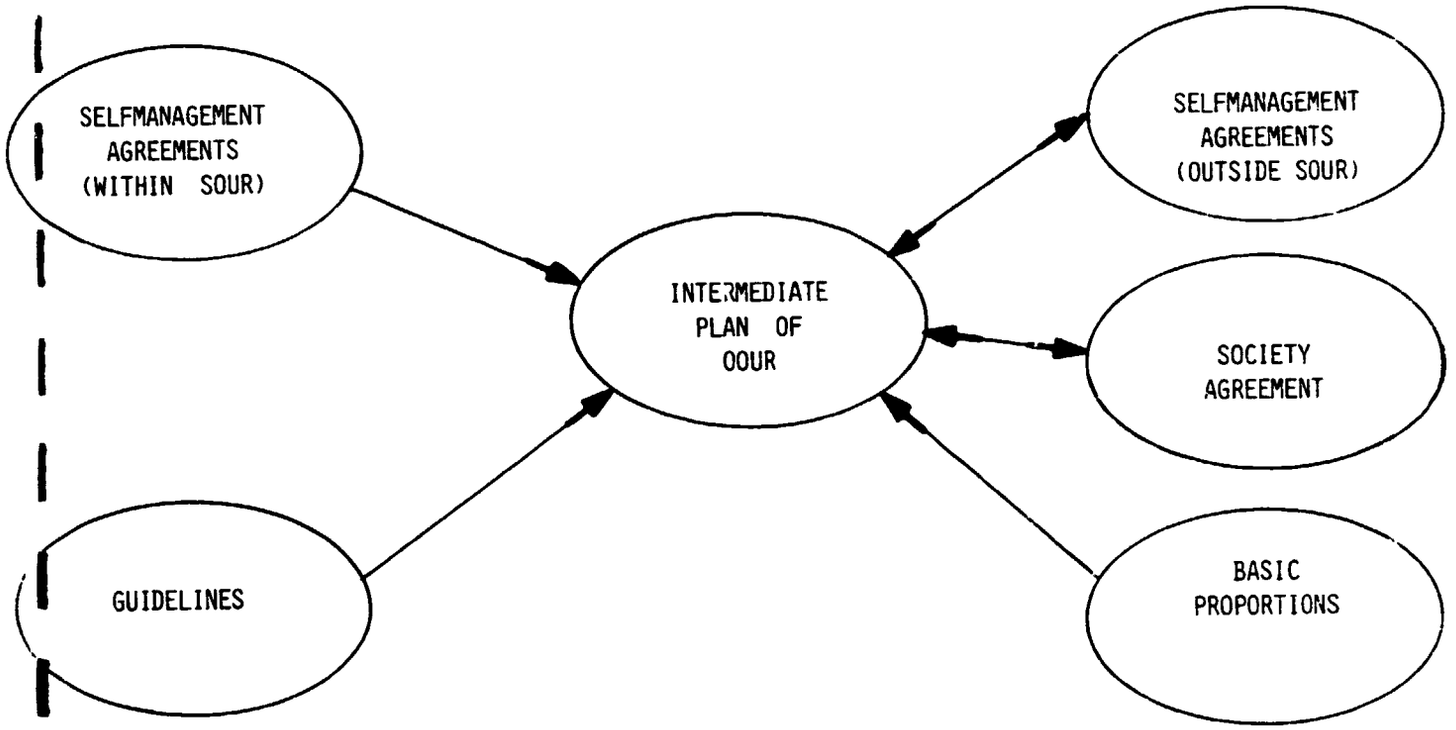
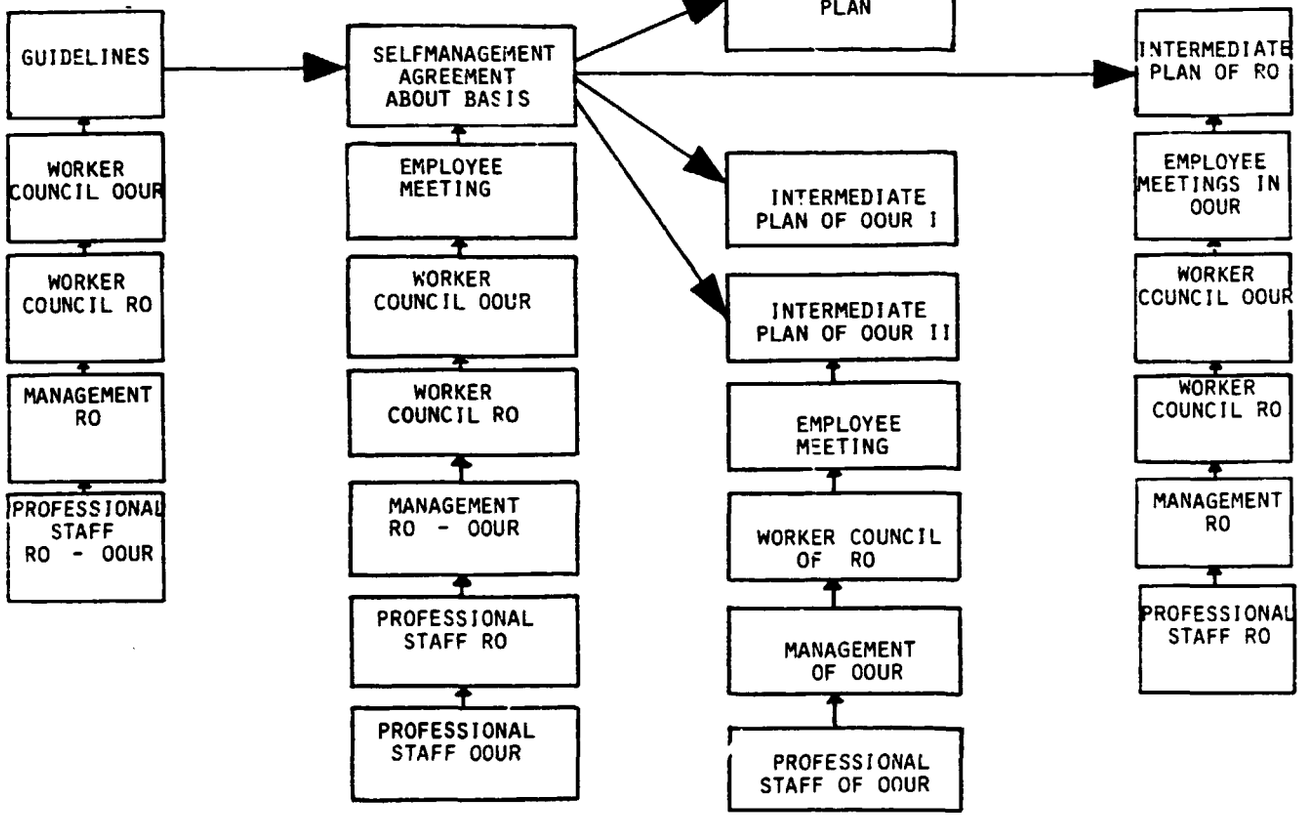
PLANNING CYCLES


LAW
SELF MANAGEMENT BODIES
MANAGEMENT
PROFESSIONAL STAFF
MANAGEMENT AND WORKERS
OBLIGATION
OBLIGATION AND INITIATIVE
OBLIGATION AND INITIATIVE
ORGANIZATION AND ANALYSIS
EVALUATION AND AGREEMENT
GOALS AND STRATEGY
BASIS OF THE PLAN
MAKING THE PLAN
EVALUATION AND APPROVAL
EVALUATION
IMPLEMEN-TATION
1
2
3
PLANNING CYCLES


SELFMANAGEMENT AGREEMENTS (WITHIN SOUR)
GUIDELINES
INTERMEDIATE PLAN OF OOUR
SELFMANAGEMENT AGREEMENTS (OUTSIDE SOUR)
SOCIETY AGREEMENT
BASIC PROPORTIONS


GUIDELINES
WORKER COUNCIL OOUR
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MANAGEMENT RO
PROFESSIONAL STAFF RO - OOUR
SELFMANAGEMENT AGREEMENT ABOUT BASIS
EMPLOYEE MEETING
WORKER COUNCIL OOUR
WORKER COUNCIL RO
MANAGEMENT RO - OOUR
PROFESSIONAL STAFF RO
PROFESSIONAL STAFF OOUR
INTERMEDIATE PLAN
INTERMEDIATE PLAN OF OOUR I
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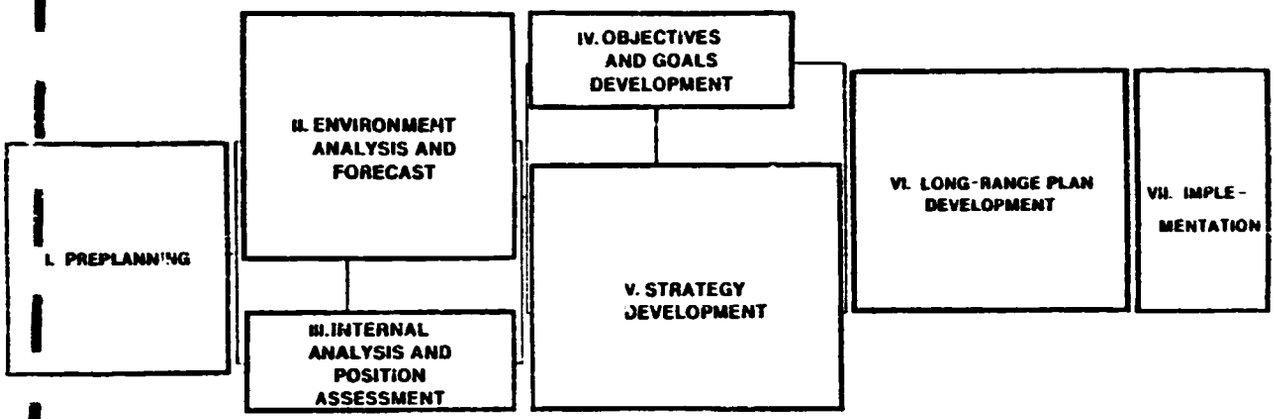
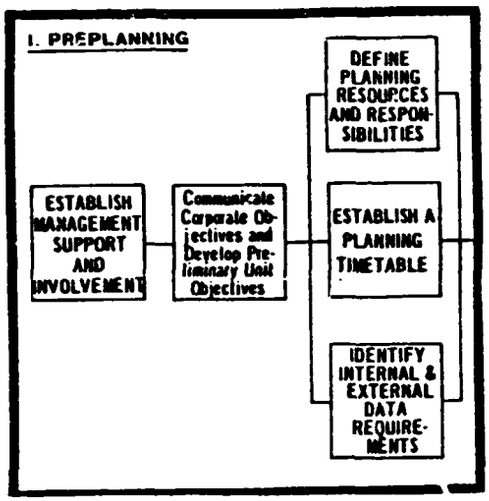
PROFESSIONAL STAFF RO


I. PREPLANNING
II. ENVIRONMENT ANALYSIS AND FORECAST
III. INTERNAL ANALYSIS AND POSITION ASSESSMENT
IV. OBJECTIVES AND GOALS DEVELOPMENT
V. STRATEGY DEVELOPMENT
VI. LONG-RANGE PLAN DEVELOPMENT
VII. IMPLE-MENTATION

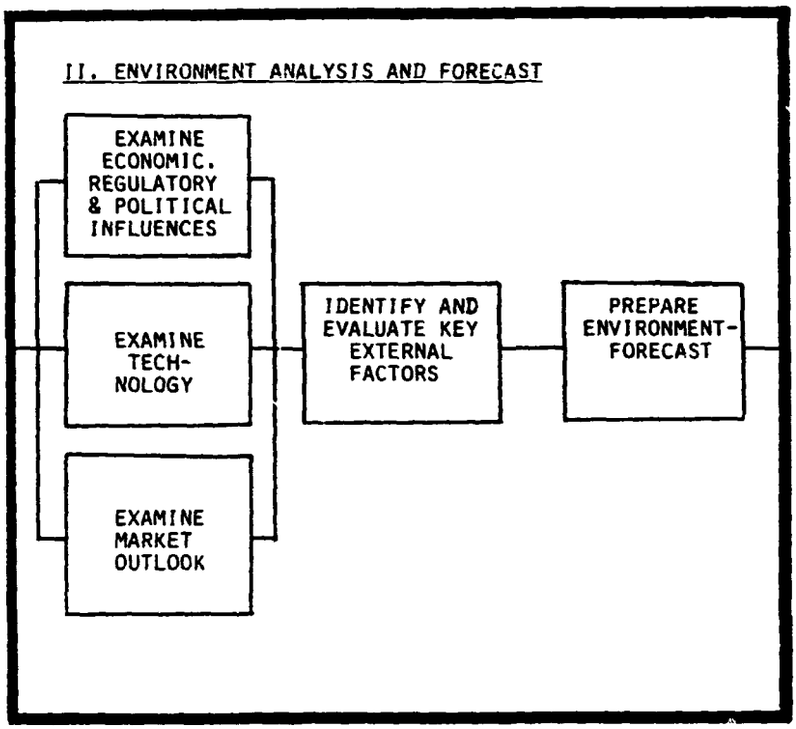
OBJECTIVES--PREPLANNING

- ORGANIZE PLANNING EFFORT
- ESTABLISH COMMITMENT OF TOP MANAGEMENT
- IDENTIFY DATA REQUIREMENTS



- **Planning Letter**
- **Work Program and Timetable**
- **Data Requirements List**

NOTE: These products provide a starting point as well as a guide for work in all other major phases of long-range business planning.

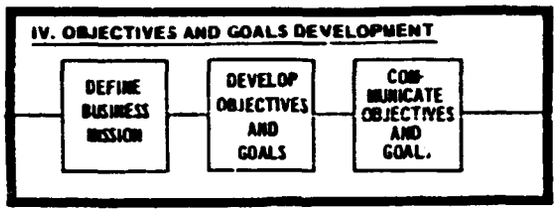


INPUT SOURCE

- DATA REQUIREMENTS LIST

PRODUCT

- ENVIRONMENT FORECAST

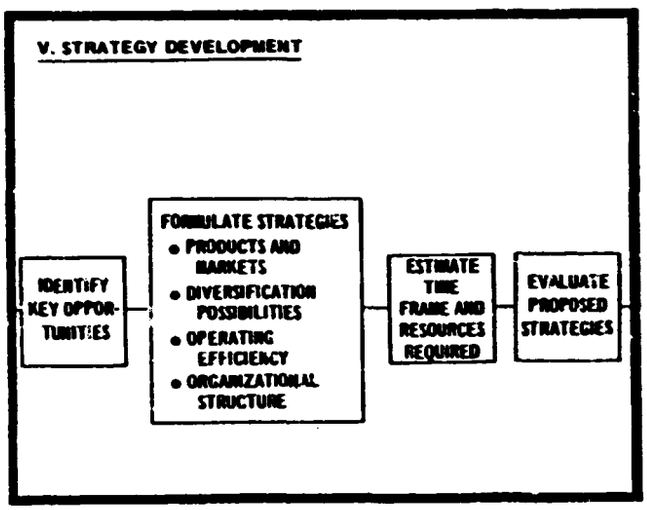


INPUT SOURCES

- Environment Forecast
- Position Assessment

PRODUCT

- Objectives and Goals Letter

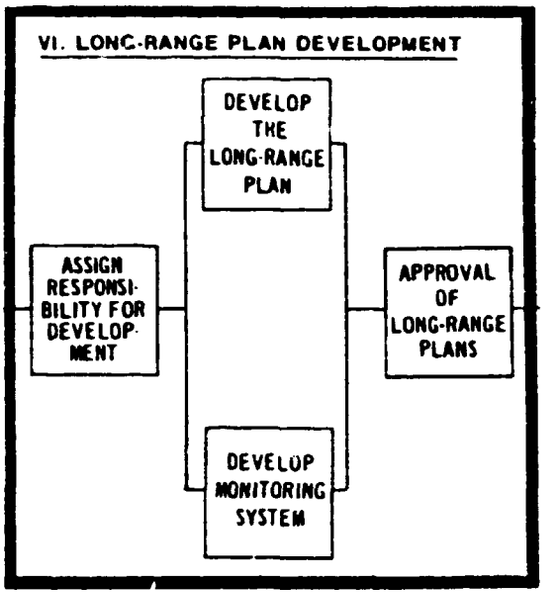


INPUT SOURCES

- Environment Forecast
- Position Assessment
- Objectives and Goals Letter

PRODUCT

- Objectives, Goals and Strategies

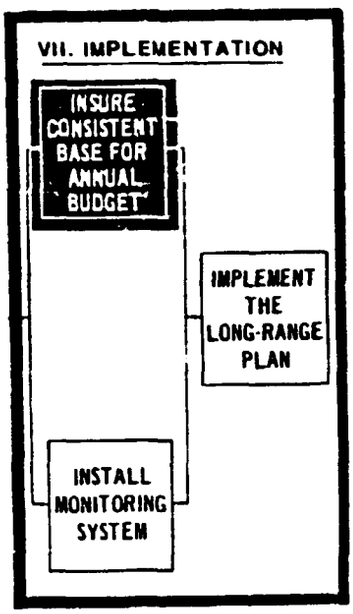


INPUT SOURCES

- Environment Forecast
- Position Assessment
- Objectives, Goals and Strategies

PRODUCTS

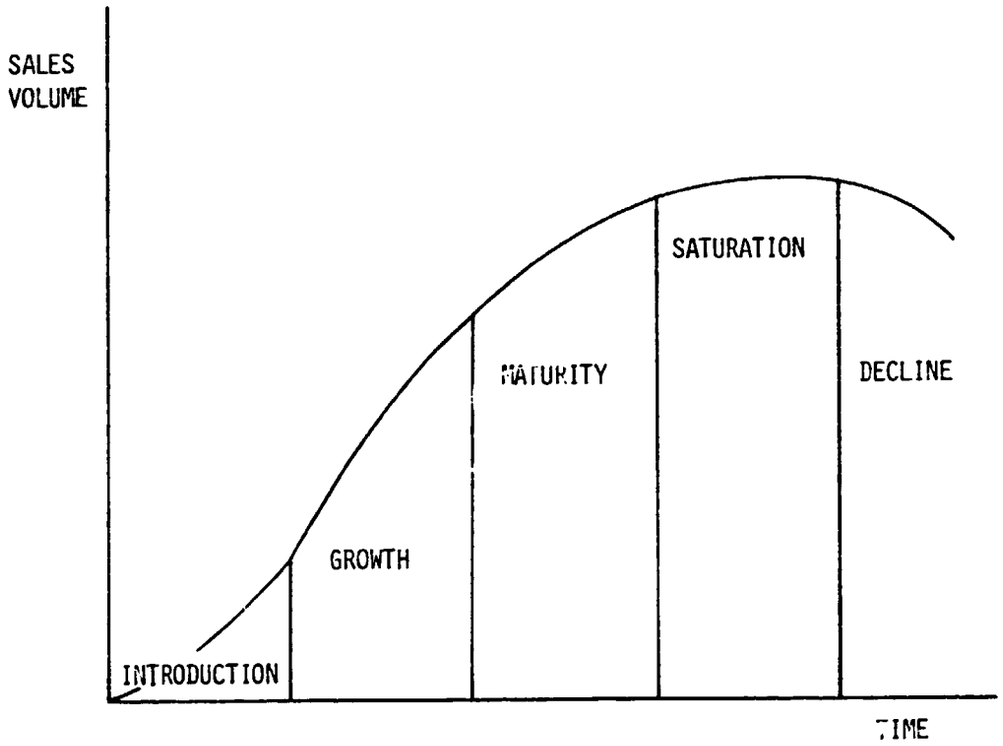
- Financial Summaries
- Executive Summary
- Long-Range Plan

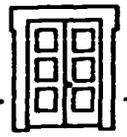


- Annual Budget is the first year of the Long-Range Plan
- Insure smooth interface for Annual Budget preparation

STRATEGIC MARKETING PLANNING CONCEPTS

PRODUCT LIFE CYCLE





STRATEGIC MARKETING PLANNING CONCEPTS

POSSIBLE SEGMENTATIONS

GEOGRAPHIC

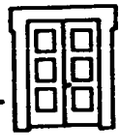
DEMOGRAPHIC:
- AGE
- SEX
- OCCUPATION
- INCOME
- EDUCATION
- FAMILY SIZE

PSYCHOGRAPHIC

BENEFIT

VOLUME

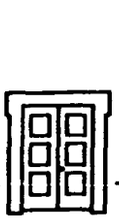
MARKETING FACTOR



STRATEGIC MARKETING PLANNING CONCEPTS

CRITERIA FOR EFFECTIVE SEGMENTATION

- EXCLUSIVITY
- MEASURABILITY
- ACCESSIBILITY
- MATERIALITY



STRATEGIC MARKETING PLANNING CONCEPTS

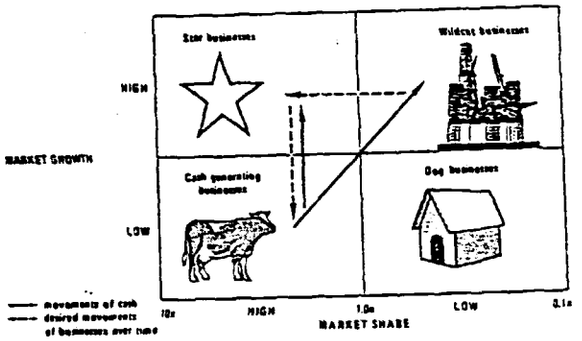
EXAMPLE OF SEGMENTATION

TOOTHPASTE IN THE U.S.

	SEGMENT			
	1	2	3	4
BENEFIT	TASTE	WHITENESS (TEETH)	PROTECTION	PRICE
DEMOGRAPHIC CHARACTER	CHILDREN (UNDER 15)	YOUNG (15-25 YEARS)	MOTHERS	MEN
BEHAVIOUR CHARACTER	USERS OF MINT PASTE	SMOKERS	BIG BUYERS	TOOTHPASTE USERS
LIFE STYLE	HEDONIST	ACTIVE	TRADITIONAL	COST CONSCIOUS

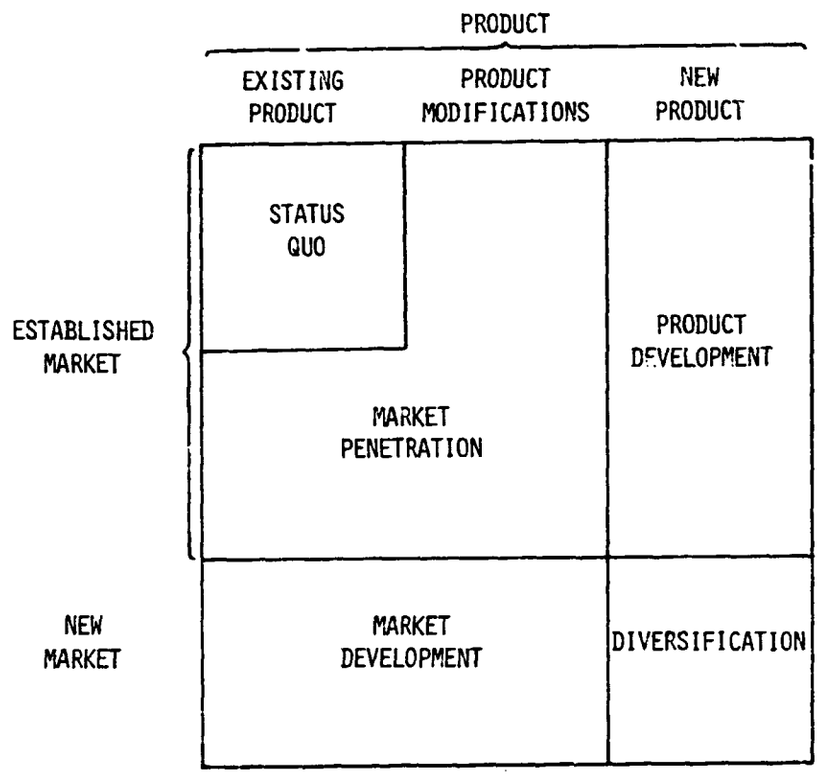
STRATEGIC MARKETING PLANNING

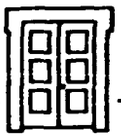
PORTFOLIO MANAGEMENT CONCEPT



STRATEGIC MARKETING PLANNING

POSSIBLE STRATEGIES





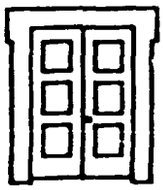
STRATEGIC MARKETING PLANNING

CRITERIA FOR EVALUATION

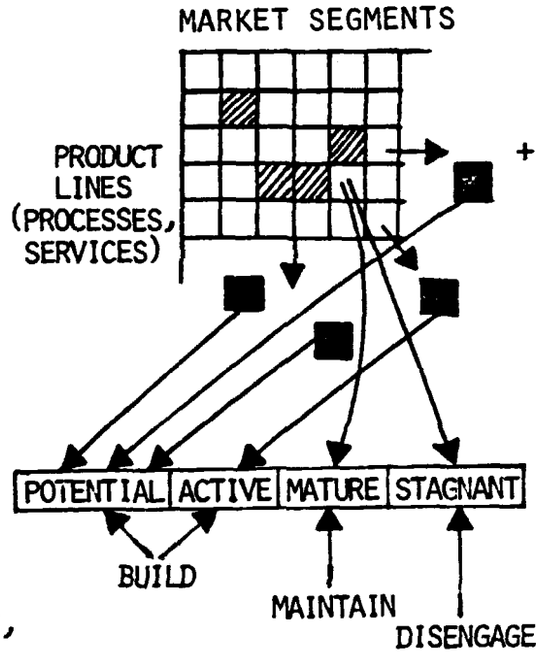
1. CLEAR STATEMENT
2. CONSISTENCY WITH COMPANY GOALS AND POLICIES (INTERNAL CONSISTENCY)
3. CONSISTENCY WITH THE ENVIRONMENT (GOVERNMENT, LABOR ...) AND THE MARKET TRENDS (EXTERNAL CONSISTENCY)
4. OPTIMUM USE OF COMPANY RESOURCES
5. ACCEPTABLE DEGREE OF RISK
6. APPROPRIATE TIME HORIZON
7. REALISM (VIABILITY)

BUSINESS PORTFOLIO CONCEPT

- MAINTAIN POSITION IN MATURE COMPONENTS BUT GUARD AGAINST EXCESSIVE INVESTMENT
- USE CASH GENERATED BY MATURE COMPONENTS FIRST TO MAINTAIN/CONSOLIDATE POSITION IN THOSE ACTIVE COMPONENTS WHICH ARE NOT SELF-SUSTAINING
- USE REMAINING SURPLUS TO FUND SELECTED NUMBER OF POTENTIALS TO BECOME ACTIVE COMPONENTS
- DIVEST NON-FUNDED POTENTIALS
- IF A STAGNANT COMPONENT CANNOT BE RESTORED, CUT OFF ALL INVESTMENTS
- BALANCE PORTFOLIO SUCH THAT CASH GENERATED BY MATURE COMPONENTS AND THOSE STAGNANTS AND POTENTIALS WHICH ARE LIQUIDATED IS SUFFICIENT TO SUPPORT ACTIVE COMPONENTS AND FUND SELECTED POTENTIALS TO ACHIEVE ACTIVE STATUS

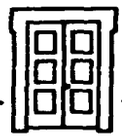


SEQUENCE OF STEPS & PORTFOLIO CONSIDERATIONS

STEP	TECHNIQUES	ISSUES
PREPLANNING CORPORATE OBJECTIVES, MISSION		SUSTAINED GROWTH BUSINESS FUNCTIONS PRODUCT AREAS MARKETS
DEFINITION OF PLANNING UNITS		+ COMMON SUPPORT FUNCTIONS PERSONNEL DISTRIBUTION SYSTEMS MANAGEMENT INFORMATION SYSTEMS
DATA COLLECTION ENVIRONMENT COMPETITIVE POSITION		
ANALYSIS		
POSITION STATEMENT		STRENGTHS & WEAKNESSES
STRATEGY DEVELOPMENT		PRESENT & NEW
FINANCIAL STRATEGIES, TECHNICAL STRATEGIES		ASSUMPTIONS CHECK POINTS HORIZON
	PROCESS DEVELOPMENT PRODUCT DEVELOPMENT MARKETING MARKET TESTS	
ACTION PLANS		
OBJECTIVES & GOALS PROJECTION VERIFICATION ANALYSIS	FORECASTS SENSITIVITY ANALYSIS SIMULATION FINANCIAL MODELS	REALISM RISK
		BALANCE OF CONTRIBUTION TO CORPORATE OBJECTIVES VS. RESOURCE REQUIREMENTS
DOCUMENTATION & APPROVAL		

ANALYSIS MATRIX

COMPETITIVE POSITION	LIFE CYCLE				
	INTRODUCTION	GROWTH	MATURITY	SATURATION	DECLINE
DOMINANT ↓					
	. . .				
WEAK					



ANALYSIS MATRIX

STEP (1) CATEGORIZE OWN BUSINESS UNITS

(2) CATEGORIZE COMPETITORS

(3) VISUALIZE KEY DATA IN MATRIX, E.G.

- PERCENT DISTRIBUTION OF CORPORATE SALES
- PERCENT DISTRIBUTION OF CORPORATE ASSETS
- PERCENT DISTRIBUTION OF NET INCOME
- RETURN ON INVESTMENT
- EXPECTED MOVEMENTS (POSITION CHANGES)
- RISK/RETURN TRENDS

(4) DEFINE STRATEGIC OPTIONS

DECISIONAL ROLES OF MANAGERS

- ENTREPRENEUR
- DISTURBANCE HANDLER
- RESOURCE ALLOCATOR
- NEGOTIATOR

SCHOOLS OF THOUGHT ON THE DECISION-MAKING PROCESS

- RATIONAL MANAGER
- "SATISFICING" VIEW
- ORGANIZATIONAL PROCEDURES VIEW
- POLITICAL VIEW
- INDIVIDUAL DIFFERENCES VIEW

TYPES OF DECISION

- STRUCTURED
- SEMI-STRUCTURED
- UNSTRUCTURED

POTENTIAL HELP THROUGH COMPUTER SUPPORT

- INFORMATION RETRIEVAL
- COMPREHENSION
- SUPPORT THROUGH PROCESS
- PRESSURE TO QUANTIFY

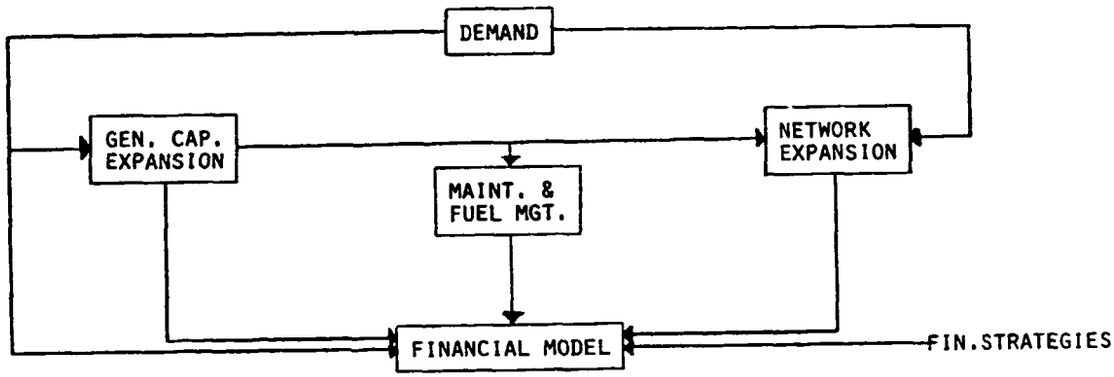
ELEMENTS OF A "PLANNING SOFTWARE"

- TABLES
- HEADLINES
- CALCULATION RULES
- DATA ENTRY
- REPORT FORMATTING

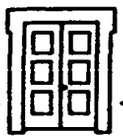
SELECTION CRITERIA

- WHICH TASKS TO PERFORM
- WHO IS USER
- GUIDANCE/SUPPORT DURING "COMPUTER DIALOGUE"
- DOCUMENTATION
- INVENTORY OF SUBROUTINES
- ACCESSIBILITY OF DATA PROCESSED BY COMPANY'S TRANSACTION SYSTEMS
- COST

ELECTRIC UTILITY--SCHEMATIC OF MODELING SYSTEM



ARROWS INDICATE INFORMATION FLOW BETWEEN THE MODELS
(ALSO A SCHEMATIC DESCRIBING THE SEQUENCE OF PLANNING STEPS !)



PLANNING ASSUMPTIONS IN 1973

- DEMAND GROWTH : MIN 4 %
  MEAN 6 %
  MAX 8 %
- HEAT-STORAGE EQUIPMENT WILL BECOME COMMON (FILLING THE "NIGHT" VALLEY OF DAILY LOAD CURVE)
- SALES OF ENERGY TO OTHER UTILITIES WILL GROW DUE TO OVERALL GROWTH IN DEMAND AND LIMITED LOW COST FUEL RESOURCES IN OTHER AREAS
- CHEMICAL INDUSTRY (CONTINUOUS PROCESS ORIENTED) WILL BECOME MAJOR CONSUMER
- IRON- AND STEEL-INDUSTRY WILL HAVE LESS DEMAND
- INDUSTRY DEVELOPMENT PLANS DO NOT INDICATE NEW INDUSTRIAL AREAS
- THE NEW RESIDENTIAL AREAS UNDER DEVELOPMENT ARE KNOWN

PLANNING ASSUMPTIONS IN 1973 (CONT.'D.)

- THE GOVERNMENT WILL FAVOUR HARDCOAL FIRED GENERATION PLANT, BUT WILL NOT DISAPPROVE OTHER TYPES
- GOVERNMENT WILL IMPOSE STRONGER EMISSION RESTRICTIONS
- CONSTRUCTION COST WILL INCREASE, BUT "FIXED PRICE" CONTRACTS CAN BE OBTAINED
- FUEL OIL COST WILL DOUBLE, BUT THAN REMAIN STABLE
- EMPLOYEE'S COMPENSATION WILL INCREASE BY 1o % ANNUALLY

RETROSPECTIVE DISCUSSION OF THE ASSUMPTIONS

- OVERALL GROWTH RATE AFTER 1976 DROPPED TO 4 % ON AVERAGE, STRICTLY FOLLOWING THE DEVELOPMENT OF TOTAL ECONOMY

- BY GOVERNMENTAL ACTIONS - TO "HELP" THE COALMINING INDUSTRY - COMPANIES HAVE BEEN FORCED TO INVEST IN COAL-FUELED UNITS WHICH ARE TOO EXPENSIVE IN COMPARISON TO LIGNITE FUELED UNITS IN THE BASE LOAD AREA

- DEMONSTRATIONS AGAINST NUCLEAR POWER PLANTS AND THE PROBLEM OF DISPOSAL OF NUCLEAR WASTE HAS STOPPED PROJECTS UNDER CONSTRUCTION AND OPERATING CERTAIN PLANTS

- APPROVALS FOR FURTHER NUCLEAR PLANTS ARE PENDING

- NO LONGER "FIXED PRICE" CONTRACTS OBTAINABLE, BUT CONSTRUCTION COST PER UNIT WORK PERFORMED DECREASED

RETROSPECTIVE DISCUSSION OF THE ASSUMPTIONS (CONT.'D.)

- HEAVY FUEL OIL PRICES WENT UP FROM 60 DM / T HCE (1973) TO 140 DM / T HCE ON AVERAGE (UNTIL 1978), CEILING AT 160 DM / T HCE
- IN 1976 THE PENSION FUNDS HAD TO BE "REEVALUATED" WHICH REQUIRED AN INCREASE OF THE FUNDS (THIS CHANGE IN LAW WAS NOT FORESEEABLE)
- EMISSION CONSTRAINTS HAVE BEEN TIGHTEND

DEGREES OF FREEDOM FOR THE PLANNING

(BASIS FOR DEVELOPMENT OF ALTERNATIVES TO BE DEVELOPED AND EVALUATED)

- ESTIMATES OF DEMAND
- PRICING-POLICIES BY CUSTOMER CLASSES (AND APPLICATION)
- GENERATION PLANT TYPES MIX AND SEQUENCE OF CONSTRUCTION
- FINANCING

COMPARISON OF FINANCIAL MODEL RESULTS AND ACTUALS (IN MIO. DM)

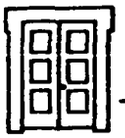
	1973/74		1974/75		1975/76		1976/77		1977/78	
	ACTUAL	MODEL	ACTUAL	MODEL	ACTUAL	MODEL	ACTUAL	MODEL	ACTUAL	MODEL
REVENUES	5.796	5.814	6.741	6.615	7.413	7.373	7.810	8.186	8.432	8.969
GEN. COST	3.418	3.287	3.490	3.492	3.521	3.850	4.013	3.977	4.325	4.636
OTHER REV.	524	430	276	252	285	262	384	275	358	288
SAL./WAGES	824	763	1.051	872	1.228	990	1.342	1.093	1.238	1.199
DEPREC.	763	802	883	940	1.136	1.133	1.113	1.158	1.099	1.178
TAXES	305	405	355	455	323	462	458	719	549	624
NET INCOME	321	339	337	358	356	345	330	551	346	512
TOTAL ASSETS	17.503	17.591	19.339	19.510	21.417	21.695	22.678	24.633	24.019	28.376

VARIANCES MODEL VERSUS ACTUAL

	1973/1974 %	1974/1975 %	1975/1976 %	1976/1977 %	1977/1978 %
REVENUES	3,1	- 1,9	- 0,5	4,8	6,4
GEN. COST	- 3,8	0,0	9,3	- 0,9	7,2
OTHER REV.	-18,0	- 8,7	- 8,1	-28,4	-19,6
SAL./WAGES	- 7,4	-17,0	-19,4	-18,6	- 3,2
DEPREC.	5,1	6,5	0,0	4,0	7,2
TAXES	32,8	28,2	43,0	57,0	13,7
NET INCOME	5,6	6,2	- 3,1	67,0	48,0
BALANCE	0,5	0,9	1,3	8,6	18,1

COMMENTS ON THE COMPARISON

REVENUES :	GROWTH RATE DROPPED FROM ANTICIPATED 6 % TO 3,5 - 4 %
OTHER REVENUES :	INCREASED DUE TO DIVIDENDS FROM FINANCIAL INVESTMENTS (JOINT VENTURES IN THE POWER PLANT AREA AND SUBSIDIARIES)
SALARY & WAGES :	INFLUENCE OF THE A.M. REEVALUATION OF PENSION FUNDS. INCREASE OF FUNDS WITHIN THREE YEARS WAS REQUIRED BY REG.
TAXES :	GENERALLY OVER-ESTIMATED DUE TO "ACTUAL LIFE" TAX POLICIES
BALANCE :	LESS ADDITIONS TO FIXED ASSETS (SEE DISCUSSION OF ASSUMPTIONS)



OVERALL COMMENTS

- FURTHER RUNS HAVE BEEN PERFORMED BY THE COMPANY'S STAFF AFTER WE HAD TRAINED THEM TO HANDLE THE FINANCIAL MODEL DUE TO THE CONFIDENTIALITY OF THE PLANNING PROCESS

- MODELS ARE USED ANNUALLY IN A "ROLLING" PLANNING PROCESS

- BUT THE COMPARISONS OF AVAILABLE MODEL DATA, WHICH RESULTED FROM THE ASSUMPTIONS MADE, IN COMPARISON TO ACTUAL DEVELOPMENT DEMONSTRATE THE VALIDITY OF THE MODEL AS LONG AS THE ASSUMPTIONS HAVE BEEN VALID AND WERE UPDATED

DISCUSSION OF THE USEFULNESS OF MODELS

- MODELS ARE THE REPRESENTATION OF COMPLETELY FORMALISED PLANNING PROCEDURES

- THEREFORE, MODELS ARE
  - PERFORMING THE COMPUTATIONS
    - \+ ON A CONSISTENT BASIS
    - \+ WITH COMPUTER SPEED
  - ALLOWING THE EVALUATION OF MORE ALTERNATIVES
  - FORCING TO CONCENTRATE ON
    - \+ ANTICIPATION OF FUTURE DEVELOPMENTS
    - \+ FORMULATION OF OBJECTIVES AND PLANNING ASSUMPTIONS
  - NOT "DECISION MAKING" TOOLS, BUT ASSIST IN THE DECISION MAKING PROCESS

- MODELS ARE AS VALUABLE AS THE WHOLE IDEA "PLANNING" ITSELF

DISCUSSION ON APPROACH USED IN DEVELOPMENT ON THE STRATEGIC FINANCIAL MODEL

- MAJOR STEPS IN WORKPROGRAM
- EXAMPLES OF BUSINESS FUNCTIONS
- EXAMPLES OF INPUT DATA AND PARAMETERS
- EXAMPLES OF FUNCTIONAL RELATIONSHIPS
- MODEL SEGMENTS
- MAN DAYS REQUIREMENTS

MAJOR STEPS IN WORK PROGRAM

- IDENTIFY BUSINESS FUNCTIONS (CYCLES) AND DETERMINE ACCOUNTS INVOLVED
- DEFINE INPUT DATA AND PARAMETERS
- ANALYSE BUSINESS CYCLE DATA AND DEVELOP FUNCTIONAL RELATIONSHIPS TO COMPUTE MODEL ACCOUNTING DATA
- DEVELOP MODEL CHART OF ACCOUNTS AND ACCOUNTING ROUTINES
- DEVELOP OUTPUT REPORTS
- DEFINE MODEL SEGMENTS: "MODULES"
- TEST MODULES
- TEST MODEL
- DEVELOP DATA COLLECTION PROCEDURES
- IMPLEMENT MODEL AND TRAIN USERS IN MODEL MAINTENANCE

EXAMPLES OF BUSINESS FUNCTIONS (CYCLES)

- REVENUES, RECEIVABLES, CASH
- PROJECTS UNDER CONSTRUCTION, LIABILITIES CASH-DISBURSEMENTS
- MAINTENANCE, LIABILITIES, RESERVES, CASH-DISBURSEMENTS
- PLANTS, MANPOWER, SALARIES/WAGES PENSION RESERVES, LIABILITIES, CASH-DISBURSEMENTS, TAXES
- FIXED ASSETS, DEPRECIATION, ADDITIONS TO FIXED ASSETS, BONDABLE ASSETS, PROPERTY TAXES
- FINANCIAL INVESTMENTS, INCOME FROM FIN. INV.
- DEBT SERVICE, INTEREST EXPENSE, CASH-DISBURSEMENTS
- CASH BALANCE PER PERIOD, FINANCING NEEDS, TAXES ON INCOME

ETC

EXAMPLES OF INPUT DATA AND PARAMETER

- KWH BY CUSTOMER CLASS AND PERIOD
- COMPLETION DATE OF CONSTRUCTION PROJECTS AND CHARACTERISTICS
- NUMBER AND TYPE OF MAINTENANCE PROJECTS BY PERIOD
- BALANCE SHEET AND P&L-STATEMENT AT BEGINNING OF PLANNING PERIOD
- FINANCING PARAMETERS FOR "FREE" AND "FORCED" FINANCING ACTIONS

EXAMPLES OF FUNCTIONAL RELATIONSHIPS

CASH (I) = 0,97 REV. (I) + 0,02 REV. (I-1) + 0,002 REV. (I-2)

RECEIV.(I) = 0,03 REV. (I) - 0,02 REV. (I-1) - 0,002 REV. (I-2)

I = PERIOD

INCOME-TAX = 0,15 MAX (0, (E-S)) + 0,36 MAX (0,(E-A), (S-A))

LOW VOLTAGE NETWORK EXPANSION =

$$KM = 21{,}153 + 0{,}845\ (8.140 + 0{,}03348\ .\ \underbrace{(1{,}02 + 0{,}099 \times T)}_{\text{KVA/CUSTOMER}}\ .\ \text{NO OF CUSTOMERS})$$

$$\frac{\text{LOAD}}{\text{NO. OF TRANSFORMER STATIONS}}$$

$$\frac{\text{NO. OF TRANSFORMER STATIONS}}{\text{NETWORK-LENGTH}}$$

MODEL SEGMENTS (MODULES)

REVENUES

CONSTRUCTION PROJECTS

PRODUCTION COST

MAINTENANCE COST

SALARIES & WAGES

OTHER OPERATIONS

DEPRECIATION & INSURANCE

FINANCIAL INVESTMENTS

LONG TERM DEBT

FINANCING AND INCOME TAXES

A MODEL IS A (SIMPLIFIED) REPRESENTATION OF THE RELEVANT FUNCTIONS OF AN ENTERPRISE IN FORM OF MATHEMATICAL AND/OR LOGICAL RELATIONSHIPS

OR

A MODEL IS THE REPRESENTATION OF COMPLETELY FORMALISED PLANNING PROCEDURES