PRESENTATION

OF

EUROPEAN PLANT PROJECT

THE COMPUTER HISTORY MUSEUM
1 027 4517 1

SEPTEMBER 1967

PROPOSAL

EUROPEAN MANUFACTURING FACILITY

SEPTEMBER 1967

MARKET OPPORTUNITY

- IMPORTANCE OF MARKET
  - IMPORTANT IN MEMOREX SALES - OVER 25%
  - GROWTH RATE FAVORABLE COMPARED TO U.S. AND WORLD
  - HIGHER RELATIVE PROFITABILITY

CRITERIA FOR SUCCESS

- EVOLVING RAPIDLY AS INDUSTRY MATURES
- STRONG NATIONAL AND EEC CONCERN FOR BASIC INDUSTRY
- INCREASING BARRIERS TO FOREIGN SELLERS

- IN SHORT,

  <u>FULL MANUFACTURING CAPABILITY ESSENTIAL</u>

SALES OPPORTUNITY

YEAR	SALES $MM	INCREASE OVER PRIOR YEAR
1967	9.6	100%
1968	12.5	29%
1969	15.0	29%
1970	17.6	17%
1971	20.5	17%

CONCLUSIONS

- SALES AND PROFIT POTENTIAL SUBSTANTIAL

- EXPECTED GROWTH AS PROPORTION OF MEMOREX TOTAL BUSINESS

- POLITICAL AND MARKETING STRATEGY DEMAND FULL MANUFACTURING CAPABILITY

STATEMENT OF OBJECTIVES

- LOCATE A FACILITY IN EUROPE OF
  SUBSTANTIAL PROPORTIONS
  WHICH MEETS NEED OF
  - MEMOREX
  - OUR CUSTOMERS

- DEVELOP SATISFACTORY BASE OF OPERATIONS
  UPON WHICH OTHER MORE PROFITABLE FUTURE
  EUROPEAN OPERATIONS CAN BE BUILT
  TO INCORPORATE
  - GENERAL MANAGEMENT COMPETENCE
  - PERSONNEL ORGANIZATION
  - FACILITIES

- ESTABLISH OPERATION WHOSE INVESTMENT TURNOVER IS SUFFICIENTLY
  HIGH TO EFFECT A MINIMAL DILUTION OF OVERALL CORPORATE
  RETURN UPON INVESTMENT

DEVELOPMENT PLAN FOR EUROPEAN PLANT SITE

- BUILDING FOR TWO (2) FULL MAGNETIC TAPE LINES
  - INSTALL DRY END IMMEDIATELY
  - COMPLETE ENGINEERING PROGRAM FOR WET END

    PROCESS IMPROVEMENT.

    TARGET 4TH Q 1968
  - PROCUREMENT WET END EQUIPMENT

    4TH Q 1968
  - COMPLETE WET END EQUIPMENT

    INSTALLATION 4TH Q 1969
- LAND FOR TAPE OPERATION AND FUTURE EXPANSION FOR
  - DISC PACK
  - PLASTIC COMPONENT
  - ENGINEERING AND TECHNICAL SERVICE FACILITY

EXCLUSIONS FROM EUROPEAN PLANT SITE

- FUTURE PSC EXPANSION
- PROVISIONS FOR MEMOREX EUROPEAN HEADQUARTERS
- FURTHER MAGNETIC TAPE EXPANSION

PRODUCTS TO BE MANUFACTURED IN BELGIAN PLANT

- COMPUTER TAPE
- VIDEO TAPE
- DISC PACKS (FUTURE)
- PLASTIC COMPONENTS FOR TAPE AND DISC PACKS (FUTURE)

SPECIFIC EXCLUSION

- INSTRUMENTATION TAPE

WHY INSTALL WET END PROCESS

- GREATEST AMOUNT OF PROPRIETARY KNOW-HOW IN ENTIRE PROCESS.
- IF NOT INCLUDED
  - WOULD NOT BE LOOKED UPON AS TOTAL, INTEGRATED EUROPEAN MANUFACTURING COMPANY
  - WILL INHERIT ECONOMIC DISADVANTAGES OF NOT BEING TOTALLY WITHIN TARIFF CONCESSIONS
  - STUCK WITH "MADE IN USA" LABEL
  - WOULD BE LOOKED UPON AS A HIGH GRADE CERTIFICATION CENTER, ONLY

WHY INSTALL TWO LINES

- ONE LINE ONLY SUPPORTS MARKETS INTO 1969
- RISK OF PLANT "DOWN TIME"
- COSTS AND PROBLEMS ASSOCIATED WITH SCHEDULING AND INVENTORYING OF PRODUCT TO PROTECT AGAINST "DOWN TIME"
- FLEXIBILITY TO ACHIEVE QUICK REACTION TO MARKET NEEDS FOR BROAD PRODUCT LINE

RISKS

TECHNOLOGY TRANSFER

- DIFFICULT PROCESS

  EXPERIENCE OF OTHERS

MANAGEMENT CAPABILITY

- REMOTE LOCATION
- NEED TO AUGMENT STAFF HERE - EUROPE

PRODUCTIVITY

  PARTIALLY UNKNOWN

- EXPECTED LAG IN ACHIEVEMENT

  ETHNIC CONFLICTS

  POLITICS

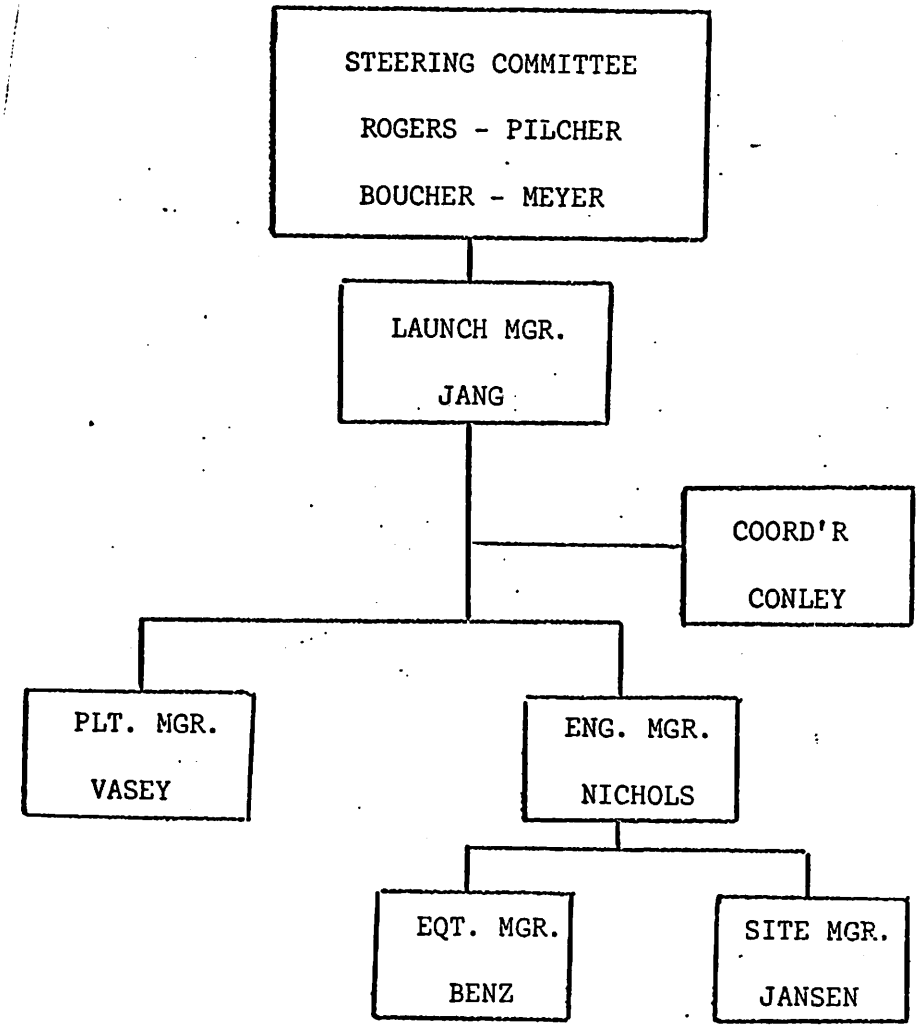
ACTION PROGRAM

PROGRESS TO DATE

- SELECTED SITE
- *NEGOTIATED SUCCESSFULLY WITH BELGIUM GOVERNMENT
- DEFINED FACILITY SCOPE
- ENGINEERING UNDERWAY
- LAUNCH TEAM

*MAY RENEGOTIATE

LAUNCH TEAM


STEERING COMMITTEE
ROGERS - PILCHER
BOUCHER - MEYER
LAUNCH MGR.
JANG
COORD'R
CONLEY
PLT. MGR.
VASEY
ENG. MGR.
NICHOLS
EQT. MGR.
BENZ
SITE MGR.
JANSEN

KEY TARGET DATES

SEPT '67	-	BOARD OF DIRECTORS APPROVAL
NOV '67	-	BELGIAN GOVERNEMENT APPROVAL
	-	FORM SUBSIDIARY
	-	ORDER CRITICAL EQUIPMENT
DEC '67	-	COMMENCE HIRING
FEB '68	-	SUBMIT PROPOSAL FOR TRAINING SUBSIDY
FEB '69	-	CERTIFY COMPUTER TAPE
OCT '69	-	WET END START-UP
JAN '70	-	ON STREAM - FULL PLANT

MAJOR STEPS REMAINING

- FORM SUBSIDIARY
- PURCHASE SITE
- NEGOTIATE TRAINING SUBSIDY
- CONTRACT CONSTRUCTION
- ARRANGE FINANCING
- RECRUIT KEY PERSONNEL

SCOPE OF PLANT

LOCATION - HAUT-SARTS INDUSTRIAL PARK

NEAR LIEGE, BELGIUM

FACILITY

- TOTAL SITE 15-20 ACRES -

  10 NEEDED, REST ON OPTION

- 87,000 SQ. FT. OPERATION NOW
- PHASE IN OPERATION
- DELAY WET END

PHASE IN

(TAPE OPERATION)

1. FEB '69 - CERTIFY COMPUTER TAPE

2. MAR '69 - SLITTING
   - CERTIFY VIDEO TAPE

3. OCT '69 - START UP WET END

4. JAN '70 - ON STREAM

MANPOWER REQUIREMENTS

- MAXIMUM EFFORT REQUIRED
- 15-20 MEMOREX MAN-YEARS FOR PROJECT AMERICANS-BELGIANS
- NEED TO RECRUIT EXPERIENCED SEASONED MANAGEMENT

<u>STAFFING - TRAINING CRITICAL</u>

CAPITAL REQUIREMENTS

- AGGREGATE INVESTMENT

  $ 9.193

- FINANCE - PART U.S. - PART EUROPEAN

- GOVERNMENT INCENTIVES TOTAL

  $ 1.020

- CAPITAL ASSETS $MM

  - LAND .150
  - CONTRACT ENGINEERING .274
  - BUILDING-CONSTRUCTION 2.479
  - EQUIPMENT 2.720
  - MEMOREX ENGINEERING .120

  $ 5.743 TOTAL

COMMITMENT SCHEDULE

YEAR	COMMITMENT $MM
1967	.750
1968	3.573
1969	3.253
1970	1.397
1971	.189
1972	.031
TOTAL	9.193

ENGINEERING PROGRAM TO IMPROVE WET END PROCESS

TO ACHIEVE

- HIGHER QUALITY
- GREATER THROUGHPUT
- LOWER COST

BY

- IMPROVEMENT IN COATING TECHNOLOGY FOR IMPROVED QUALITY AND YIELD
- HIGHER SPEED COATING LINES FOR INCREASED CAPACITY
- TROUBLE-FREE MILLING
- NEW OVEN DESIGN FOR HIGHER SPEED AND CLEANER OPERATION
- ST-3 SURFACE TREATING PROCESS FOR IMPROVED QUALITY

ECONOMIC ANALYSIS

- INVESTMENT SUBSTANTIAL
  - INITIAL ENTRY
  - LARGE SUNK COST
  - NEXT INCREMENT INVESTMENT

    WILL ACHIEVE HIGHER RETURN

SUMMARY

INCOME - PROFIT

1967 - 1972	INVESTMENT - $MM
SALES	74.6
NET PROFIT	9.2
CASH FLOW	8.15

INVESTMENT	
ASSET	5.743
WORKING CAPITAL	3.45
SUB TOTAL	9.193
LESS GRANT SUBSIDY	(1.02)
TOTAL	8.173
START-UP TRAINING	1.990

	MEO	SC
RETURN ON SALES	12.3%	11.1%
CAPITAL T/O	3.3	3.7
RETURN ON INVESTMENT	28.5%	32.0%

COMPANY CONFIDENTIAL

MEMOREX CORPORATION

MEMORANDUM TO THE FILE DATE: September 18, 1967

FROM: E. L. Rogers

SUBJECT: Development of the Liege, Belgium Plant Site

Reference A: L. L. Spitters Memorandum dated August 18, 1967
Subject: Statement of Objectives for European Plant Planning

B: Proposal for European Manufacturing Facility, dated August 1967

As stated in Enclosure A, a program was presented on August 18, 1967 to the Executive Committee of the Memorex Board of Directors for the implementation of the European Plant Project. The program presented was that contained in Reference B. After consideration of the program proposed, the Board of Directors did not approve it; the reason being that in their judgment it failed to achieve an adequate return on investment. Memorex management was then instructed through Reference A to propose an alternate program which would meet the criteria of improvement of the investment turnover ratios. Specifically, the challenge was to improve the investment turnover ratio to one comparable to U.S. investment in manufacturing operations and to decrease the proposed fixed asset investment to approximately $4.5 million (a $2 million reduction) without sacrificing productivity, i.e., the salesvolume such investment can support.

The revised program is to meet the following three-sentence statement of objectives of the Board of Directors as stated in Reference A:

(1) We must locate a facility in Europe of substantial proportions, i.e., a multi-million dollar investment, which meets the needs of our organization and customers.

(2) We must develop a satisfactory base of operations (incorporating general management competence, personnel organization, and facilities) upon which other more profitable European operations can be built in the future.

(3) We must bring into operation a plant whose investment turnover is sufficiently high to effect a minimal dilution of overall corporate return upon investment.

This memorandum states the current requirements and recommendations of the Memorex International Division for the long-range development of the Liege, Belgium plant site to serve the needs of the Memorex European Operations:

(1) Phase I

(a) Procure land, erect building and supply equipment for a full two (2) line magnetic tape plant for the manufacture of computer and video tape, per the schedule subsequently described herein.

(b) Procure sufficient land to provide for future expansion into the manufacturing of disc packs. In the long term we must plan to capitalize on our European market which is tape, disc packs and other allied products, not just magnetic tape alone.

(c) Procure sufficient land to provide for future expansion into the manufacture of plastic components for magnetic tape and disc packs.

(d) Procure sufficient land to provide for a modest magnetic tape and disc pack engineering and technical service facility to support the European magnetic tape and disc pack operations.

(2) Phase II

(a) This phase would consist of the implementation of the operations referred to in Phase I (b), (c) and (d) above, as the future European market needs dictate.

(3) Future Operations Excluded from Belgium Plant Plans

(a) Provide for expansion into the manufacture of PSC peripheral equipment product lines. The management of PSC have stated that their future expansion into Europe would be into an area more closely associated with computer and computer peripheral equipment design and manufacture. They therefore do not propose to use the Liege, Belgium plant site, as the U.K. or other locations more closely associated with the computer industry would be more logical areas for their purposes.

(b) Provide for the Memorex European Headquarters. It is quite likely that the future expansion of Memorex activities in Europe will dictate plant operations in geographical locations other than the Liege, Belgium facility, such as PSC and disc pack expansion in the U.K. or elsewhere. It would therefore seem more appropriate and advantageous to locate the Memorex European Headquarters in a large metropolitan area such as London.

(4) Need for Only One Magnetic Tape Plant in Europe

We do not see an economically justifiable need to implement a second magnetic tape manufacturing facility in Europe (and specifically in the U.K) in the future. From a marketing point of view, it is believed that the entire European market can and must be served from one manufacturing plant. We therefore look to the Belgium plant to serve both the present and future needs for the Memorex European Operations.

(5) Size of Manufacturing Facility

The forecast for tape sales in Europe through 1970 is as follows:

Year	Most Likely		Best		Worst	
	$	Rate	$	Rate	$	Rate
1966	4.8	300%	4.8	300%	4.8	300%
1967	9.6	100	10.0	110	9.0	87
1968	12.5	29	13.7	37	10.35	15
1969	15.0	20	17.0	25	11.9	15
1970	17.6	17	20.0	20	13.6	15

In order to adequately and efficiently serve the market growth, we request the implementation of a plant housing two (2) complete coating lines. One (1) line would only support the market needs of the European sales force until January 1969. Other reasons include:

(a) risk of plant "down-time";

(b) costs and problems associated with scheduling and maintaining adequate inventories of the entire product mix as a back-up to potential unscheduled plant "down-time";

(c) lack of flexibility in manufacturing to supply quick reaction to the European marketing organization to meet growing needs for a broad product line.

There are no plans nor foreseeable requirements for future expansion beyond a two (2) line tape plant. Assuming engineering effort will continue to increase the through-put of the entire magnetic tape manufacturing facility in Santa Clara, as well as in Europe, this effort should supply the margin of safety for capacity in the long term.

(6) Products to be Manufactured in the Belgium Plant

The products to be manufactured in the Belgium plant will be:

(a) computer tape,
(b) video tape,
(c) disc packs (future),
(d) plastic components for tape and disc packs (future).

There are no plans at this time to manufacture instrumentation tape in the Belgium facility. The market for instrumentation tape in Europe is relatively small. This market is largely a U.S.-oriented aerospace, defense and security market. Due to the nature and size of this market, we plan to continue to serve it through the export of tape from our Santa Clara facilities.

(7) Operating Concept of the Proposed Tape Plant When in Full Operation

(a) full two (2) line tape plant including wet end to supply capacity forecasted by our European Operations;

(b) wet end process operated seven (7) days per week, three (3) shift basis;

(c) computer finishing and testing on five (5) days per week, three (3) shift basis;

(d) video finishing and testing on a six (6) days per week, three (3) shift basis.

(8) Requirement for Implementation of Full Wet End Process

It is recognized that one of the greatest risks is the implementation of the wet end process. First, it is the operation that results in the transfer of the greatest amount of proprietary know-how from the U.S. to Europe.

Secondly, the wet end process must be implemented to achieve quality of product equal to or better than that being imported into Europe and which represents the Memorex standard of quality to our European customers. However, to capitalize on the market opportunities in Europe, we must assume these risks. To only implement the dry end of the operation would result in the following:

(a) Memorex would not be looked upon as a total, permanently based European manufacturing company.

(b) We would inherit at least in part the economic disadvantages of not being totally within the tariff concessions.

(c) A high probability that by importing coated jumbos, the Belgian government would recognize that the major portion of the product value was added in the U.S. and therefore require the product to be marked "Made in U.S.A." Further, partially processed products may encounter higher tariff rates associated with importation of raw materials. Raw material tariff rates are generally higher than those associated with finished products. We may, therefore, create a situation tending toward high value and higher tariff rates.

For purposes of our current evaluation, we should treat the tariff question as follows: Under current Belgian tariff laws, if the imported material such as jumbos were a part of a manufacturing operation in which the preponderance of the material was certified to be re-exported from Belgium, it could be first treated duty-free. However, it would not qualify as a common market product, and an essentially equal tariff burden would attach when the finished product was exported from Belgium. The tariff payment would only be delayed. For purposes of our current project financial evaluations, we feel that the same tariff percentage (i.e., 14.0%) that applies to finished tape imported into Belgium can be applied to the value of the jumbos.

(d) Without the wet end process installed, the operation would probably be looked upon as a high grade certification center.

(9) Savings for Minimum Two Line Tape Plant with Wet End Process vs. Minimum Two Line Plant without Wet End Process

Studies to date reveal that the minimum plant design concept incorporating complete coating lines essentially identical to the most advanced design of lines existing at Santa Clara would result a savings of approximately $550,000 in equipment and start-up costs, as compared to the figures originally presented in Reference B.

However, to delay the implementation of the wet end process for one (1) to one and one-half (1½) years would result in an initial capital requirement reduction of $2.2 million (i.e. $1.5 million in equipment and $700,000 in training and start-up costs).

(10) Potential Advantages Achievable from Santa Clara Engineering Programs through Temporary Delay of Implementation of Wet End Process

Engineering programs are currently underway in Santa Clara which have a high probability of success for achieving the following within one to one-and-one-half years which would improve product quality and throughput:

(a) replace current coating technology with one which is two-and-one-half (2½) times better in terms of coating quality (probability - 90%);

(b) replace current coating lines with lines of coating speeds of 300 to 400 feet per minute (and possibly higher) as compared to current line speeds of 85 feet per minute (probability - 90%);

(c) develop a milling operation capable of essentially trouble-free milling (probability 60-70%);

(d) new festoon oven designed for improved product quality (probability -70%);

(e) full establishment of ST-3 process (probability - 100%);

Let us assume we had two (2) complete lines of current Santa Clara design installed in the Liege, Belgium plant. To install the advancements described in (a) through (e) above would obsolete approximately $1.4 million in equipment.

Delay in implementation of the wet end process would allow adequate time to qualify local European suppliers of critical materials, such as oxides, polyester film, resins, etc., to Memorex standards to coincide with wet end start-up.

Given even conservative success on the elements of the engineering programs outlined in (a) through (e) above, they should increase the capacity in Santa Clara sufficiently to carry the corporate needs for both domestic and international requirements to the 4th quarter of 1969. This would therefore indicate that the program to install the equipment of advanced wet end design in the Belgium plant should be released at start of the 4th quarter of 1968.

(11) Effect on European Sales if Plant Incorporating Dry End Process Only Is Implemented for Next 24 Months

The market situation for tape is getting more competitive with time in Europe. BASF and IBM are both very price competitive, particularly in the Common Market countries. It is the opinion of the Memorex European management that, given a plant without the benefits of the entire process (i.e., dry end only), they can probably hold the sales at or near the forecasted target but the profitability will decline. In their opinion, during the next year the European prices will reach the general level of U.S. prices, plus duty, and decline during the next year to the level of U.S. prices, and we would have to absorb the duties to be competitive. It is therefore apparent that our delay in implementing a plant incorporating the complete wet end process must be relatively short in time if we are to remain competitive.

(12) Recommendations

The following is the revised program recommended to meet the objectives of the Board of Directors:

(a) procure land and erect a building capable of housing a full two (2) line magnetic tape plant for the manufacture of computer and video tape;

(b) initially install the dry end process only, pending completion of the Santa Clara engineering program described in (10) above which is planned to improve the wet end process and the through-put of the coating lines in both Santa Clara and the proposed European plant;

(c) place a high internal company priority on the engineering program as described in paragraph (10) and commit continuous budget funding to insure that the technical targets for this engineering program are met at the earliest possible date. The target date for such completion shall be such to permit the initiation of the procurement of such lines for the Belgian plant at the beginning of the fourth (4th) quarter of 1968;

(d) budget for the procurement of two such coating lines at the beginning of the fourth (4th) quarter 1968 with a target date for full operation of these lines in the Belgian plant by the beginning of the fourth (4th) quarter of 1969;

(e) establish the target of the start of the fourth (4th) quarter of 1968 as the date to install the technical improvements resulting from the engineering program, per paragraph (10) above, to sufficient coating lines in Santa Clara to:

1) fully prove their operation prior to their installation in Europe,

2) achieve the additional through-put to increase the capacity needed for the growth of both the U.S. and foreign markets during this period,

3) achieve the required reductions in manufacturing cost to realize corporate profit targets in face of the maturing of both the U.S. and European markets and to offset the potential interim reduction in profitability in Europe until such time as the full manufacturing facility can be installed in the fourth (4th) quarter of 1969.

4) immediately expand the scope of the launch project to initiate a study of an optimum disc pack manufacturing facility to be added at a future date when there is complete assurance that the technology to be transferred is identified (i.e., when the disc pack facility in Santa Clara is manufacturing good disc packs). The possibility still exists for transferring the Disc Pack Corporation facility and key management to Europe for this purpose. The current recommendation is that such a program be implemented in two phases:

1) Phase I - a facility capable of the manufacture of disc packs at a rate of 1500 per month (estimated cost $2,000,000 in building and capital equipment if all new equipment were to be procured,

2) Phase II - the addition of a second increment of 1500 packs per month approximately 18-24 months after the installation of the first increment (estimate - additional $500,000 investment in capital equipment).

The addition of the disc pack capability to the European operations will be based upon an economic analysis independent of that for the European tape plant.

ELR:cc