

How Fast Tobacco Can Be:
THE LOGISTICAL PROCESS AT ROTHMANS OF PALL MALL INDONESIA
IN THE 1997 INDONESIAN ECONOMIC CRISIS

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Introduction

Every year Rothmans International Group publishes a geographical business report. In this report the different Asian geographical regions are compared with one another concerning profit, costs, sales etc. Before 1996, Rothmans of Pall Mall Indonesia was always at the 1st place concerning profit. This is because of the low costs spent in Indonesia. In 1996 profits were declining and their place at the hit list was taken by Malaysia. This wakened the management in Jakarta and Malang. The Profit numbers were still declining due the higher costs than expected (sales maintain constant). The costs increased in the year of 1996 with 10% (usually between 4% and 6%). Those 10% total for a RP 2,6 billion: 1996. According to the management there were two main causes for the 1996 year's high costs :

1. High contributions to the personnel of the Indonesian government
2. Production costs were higher then expected at the factory in Malang.

The causes of the higher production costs were :

1. Extra labor costs (approx. RP 1 billion).
2. Due the major changes of managers in key positions the efficiency of the running of the factory declined.

The efficiency of the factory had to be improved. To get a clear picture on the 1996 situation of the production process and to get an idea about which machines and departments had to be improved and how to improve them, Rothmans of Pall Mall Indonesia wanted to have an analysis what was happened with the business logistics in 1997.

Using Yin's case study method (Yin, 1989), the objective of this paper is to investigate the 1997 logistical system where this is the started turmoil year of the Indonesian economy. Rothmans Indonesia was working with old-fashioned machines and in the past there had been made ad-hoc improvements for the purpose of solving bottlenecks and problems in the factory. Therefore extra production hours were used.

What was happened

The two major problems mentioned before indicate the areas of the logistical process in which a detailed investigation had been done. The first was a bottleneck, flow analysis and time study of the business logistics, the second was efficiency measurement of the different processes of the logistical process.

How should it be done

The overhead method of the investigation was based on the black-box model of In 't Veld_G. This was because of the complexity and open-ends of the problem description. The investigation process had to be conducted bottom up because of the location of the researchers and their place within the organization. As a philosophy behind this bottom-up research the ideas of Goldratt_E were adopted. Problems were highlighted and further investigated. If the cause of the problem could not be found on the operational level of the organization, a study was made of the tactical and strategic levels. This kind of study was also like Het lamp model of Potgens_I concerning the study of the tactical and strategic level.

The whole research was completed as follows:

1. An overall view of the organization was established
2. A detailed vision of the production process was made
3. Time/quantity studies about resources and occupation levels were completed
4. Interesting parts of the process were analyzed further (bottleneck and inefficient resource)
5. Conclusions were made and solutions were established
6. Solutions were presented and implemented them into the organization

Explanation of the report classifications

The limits of the study are described. A small description of Rothmans can be found (for a full description: Appendix 1). The study also describes the methods of the investigation, giving a detailed view of the research methods and

their origin. The results of the analysis are described. The conclusions and recommendations will be discussed. Finally, in chapter 6 the implementation of a new planning-system will be analyzed.

In the whole report small alphabetic letters are used to link back to the table of authorities. In the table of authorities are the same letters used, which gives the exactly information about the source. The small numbers behind the words refer to footnotes.

A remark is made about the exchange rate of the Rupiah. In 1996 the RP was at 6.000 to the US dollar, January 1998 the RP reached an ultimo dept of 9.000.

Table of term

The following is an overview of the specific abbreviations used by PT Rothmans of Pall Mall in 1997 and their meaning.

Abbreviation	Explanation
DI	Dunhill International
DIM	Dunhill International Menthol
Dii	Dunhill Light
DKS	Dunhill King Size
DKSM	Blue Ribbon Super Size
BLRSS	Kansas Plain
KanP	Kansas King-size Filter
KanKF	Kansas Menthol
KanL	Kansas Light
KanMLi	Kansas Menthol Light
WHRLS	White Horse Long Size
MSB	Mars Brand Shag
MBP	Mars Brand Paper
3RHL	3 row box
2RHL	2 row box
KOOP	Customer Order Detachment Point (planning vs customer-specific)
Rothmans	PT Rothmans of Pall Mall Indonesia

A survey of the terms used by Rothmans and their meaning in the 1997.

Term	Explanation
Bandrol	Tax label
Blend	Mix of various tobacco's which make specific a brand
Casting	Flavor
Flavor	Sauce with the blend is mixed to make a specific taste
Packaging	Department where Rothmans package the cigarettes into boxes, sleeves and cardboard's
Primary	Department where Rothmans make the blend of the tobacco
Stick	Cigarette
Stick-making	Department where Rothmans produce the cigarette (with the tobacco, filter and paper)

Criteria of the investigation

The products that Rothmans produces in 1997 were Dunhill and Mars Brand for the International market and Kansas White Horse and Blue Ribbon for the domestic market. These brands were available in different sizes, filter/non-filter, packages and menthol versions. This totals the number of blends at 9 and the number of end products at 14. The total annual revenue of Rothmans of Pall Mall Indonesia was about RP 100 billion with approximately 2.400.000.000 cigarettes product a year.

The head office of Rothmans of Pall Mall Indonesia was situated in Jakarta. The production and storage for raw materials and finished goods inventory was maintained in the factory in Malang. The domestic tobacco in 1997 was 65 %. The rest mainly imported from America and Brazil but they were bought around the world by Rothmans International. Every brand had it's own blend (mixture of tobacco). A blend was made from 15 till 32 types of tobacco and flavored with a casting. Every brand had its unique casting, which was imported from Europe.

For the production of the cigarettes Rothmans Indonesia makes used of 2 GLT-machines, 3 blend-machines, 11 production machines, 11 packaging machines and 60 warehouses spreading over all the Indonesian archipelago. The people in the factory work 40 hours a week, from 7.00 till 16.00 with a break of 1 hour at noon.

It was mentioned that not all activities of the company took place in Malang. Jakarta was the head-office of Rothmans. The President Director,

Marketing Director, Financial Director, Human resources Director and the complete Marketing and Financial department were in Jakarta. For the investigation, only the factory in Malang was investigated. The place of the researchers in the organization was directed under the Human resource manager of Malang. In order of level it was on tactical level. The organization chart can be seen in figure 1. All functions which were situated in Malang were gray. The position of the investigators was shown in red.

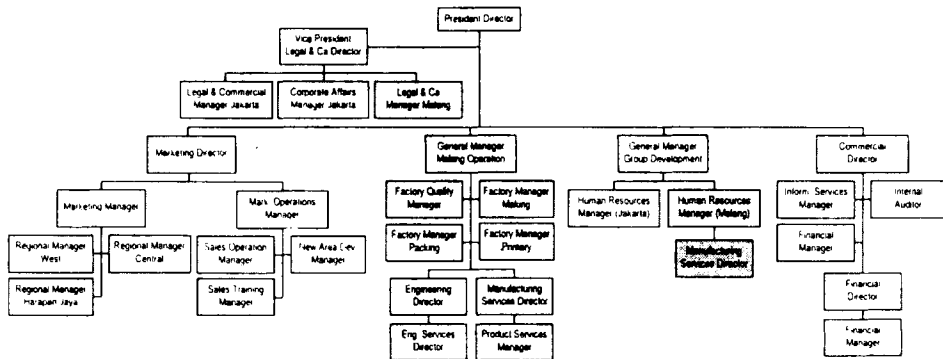


FIGURE 1: ORGANIZATION CHART OF ROTHMANS [Source: Own investigation]

Malang was directed by two managers, the GMM (General Manager Malang) and the GMMO (General Manager Malang Operations). The GMM was responsible for organizational task whereas the GMMO was responsible for the production process.

The Production Process

The manufacturing process of the cigarette was easy. The raw tobacco leaves were harvested and pre dried. They arrived at Rothmans in 80 KG backs. Here, they were shortly stored until further production follows. The first part of the production was the green-leaves trashing. Here the leaves and the nerves were separated, washed, steamed and dried, cut and boxed for a long time storage. To gain quality the tobacco was now stored, depending on each brand until ½ or 1 year.

After the long time storage the tobacco was steamed again to make sure that it was not broken. Then the tobacco was cut into final size and mixed with the cut nerves and wood. This was done by various tobacco brands at the same time in one machine. The mixture of tobacco was called a blend. The blend was casted with a flavor to give it some specific taste and dried. After the drying, the tobacco goes for three days into a cold storage.

The blend was fed into the stick-making machine at the making department. Here the blend was rolled into a paper and a filter was glued to it. The sticks again go into a cold storage for three days.

Finally, the sticks were packed into packs, sleeves and boxes. After that the boxes have to be stored for 7 days for good quality. After that they were distributed to the various sales-points.

The basic of this logistical process of the factory in Malang can also be seen in figure 2. KOOP and some logistical core definitions are also presented.

The Limits of The Investigation

The investigation focused on the primary production process at operational and tactical level (as also can be seen in figure 2 and 3 on page 13 / 14, limits of the organization: The area within the dotted line is the to be investigated area). The basic cigarette making process was analyzed. However, one thing not taken into account was the long time storage. This was because decisions for purchasing were made by an expert group, consisting of farmers and growing specialists. The most important here was the quality of the tobacco, the characteristics of a tobacco harvest and long-term harvest plans. The investigators did not know very much about this to give an opinion and leave therefore this part of the process to their counterparts in Wageningen.

Because of this, the purchasing of raw materials was the left limitation of the investigation.

Further, because all strategically decisions were made in Jakarta, the work in Malang could only span tactical and operational decisions. The research was limited to that. On some points, some opinions were given concerning the strategic level.

At the end of the process the products would be distributed. Some deliveries were going directly to 40 distributors, but most of the deliveries are going to a stop-point (warehouse). On every major island was a stop-point. As example Sumatra has 2 stop-points. The islands Sumatra, Java, Bali and Lombok products are delivered by truck. For the other islands the products are delivered by boat from Surabaya. All the deliveries are arranged from Jakarta and therefore not conducted in this research.

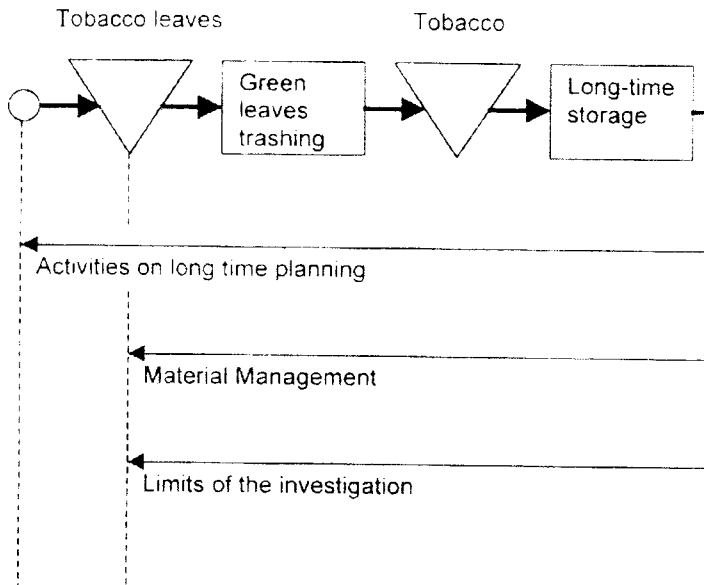
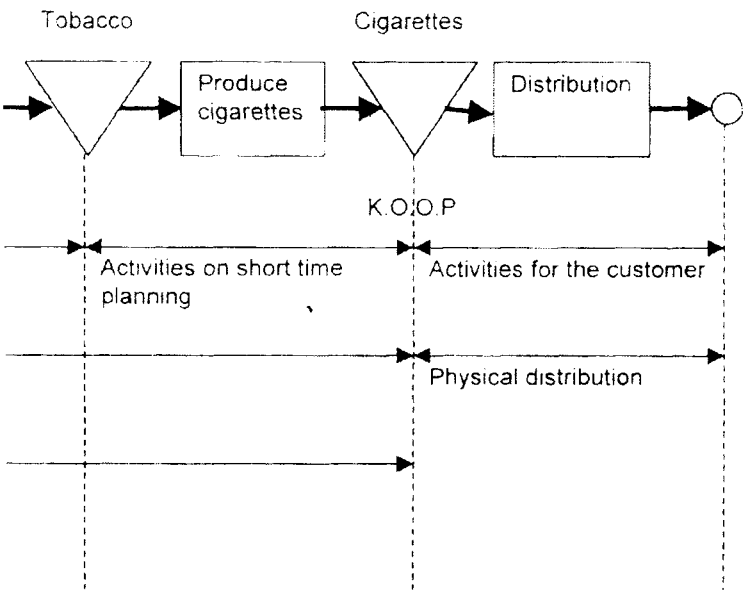
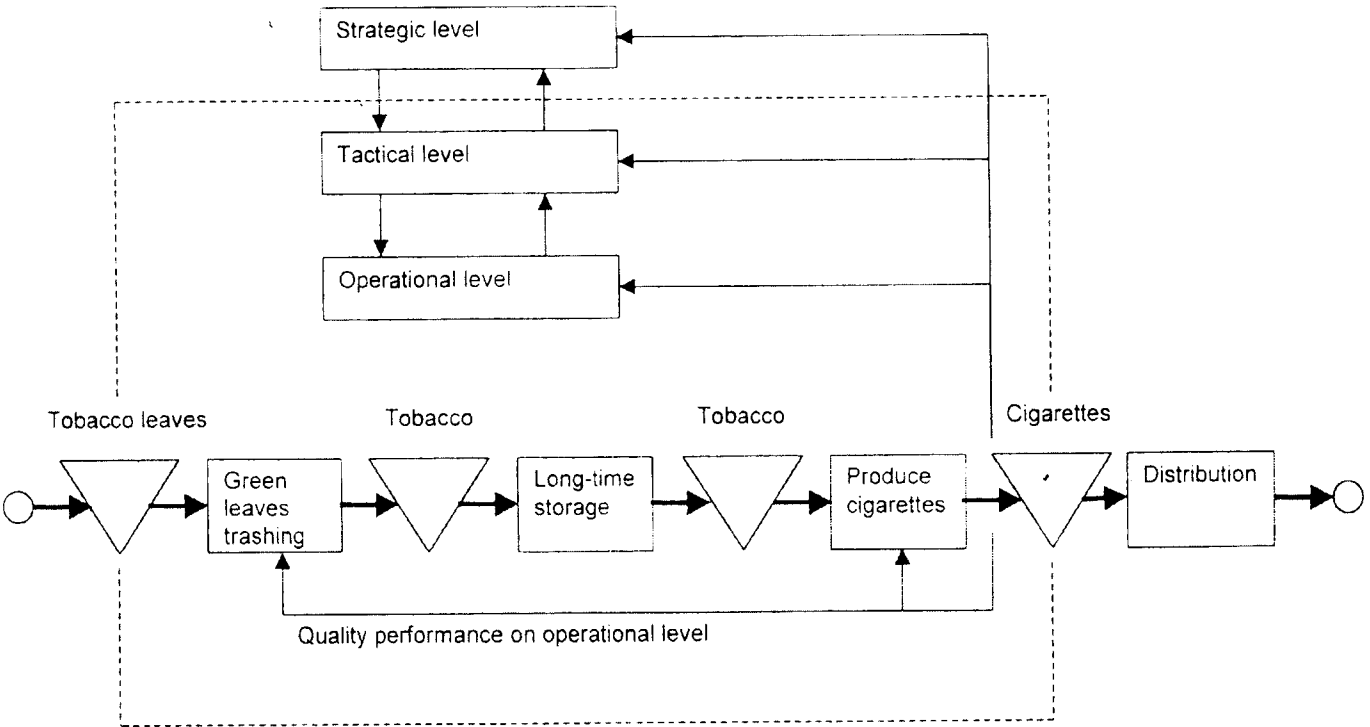


FIGURE 2 : BASIC OF THE LOGISTICAL PROCESS

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[Source : HeijnsdijkF]



[Source : HeijnsdijkF]

Method of Investigation

The overall method of research was the Black Box approach according to In 't Veld_G. This is because of the complexity and open-endedness of the problem description. Because of the location of the investigators (geographical) and their place within the organization, the investigation had to be conducted bottom up. A top-down approach may not be successful because of the difficulties of obtaining material from Jakarta (Jakarta-Malang, 1200 Km) and the secrecy of core-data. Due to the philosophy behind this bottom-up research the ideas of Goldratt_E were adopted, concerning throughput, inventory and operation expenses. The throughput will remain constant, the inventory and operation expenses will be reduced.

The process steps were in the following order:

1. Establishing a global view of the factory
2. Specialized view about the production process
3. Specialized view about the occupation level of machines and the efficiency of the use of resources
4. Analysis of the problem parts
5. Solutions to the problem parts.

Special attention was paid to the analysis of the occupation level of machines and measurement of the efficiency of the resources because this is the starting point for further research. Graphically the investigation can be seen in

figure 4: Overview of outline and method.

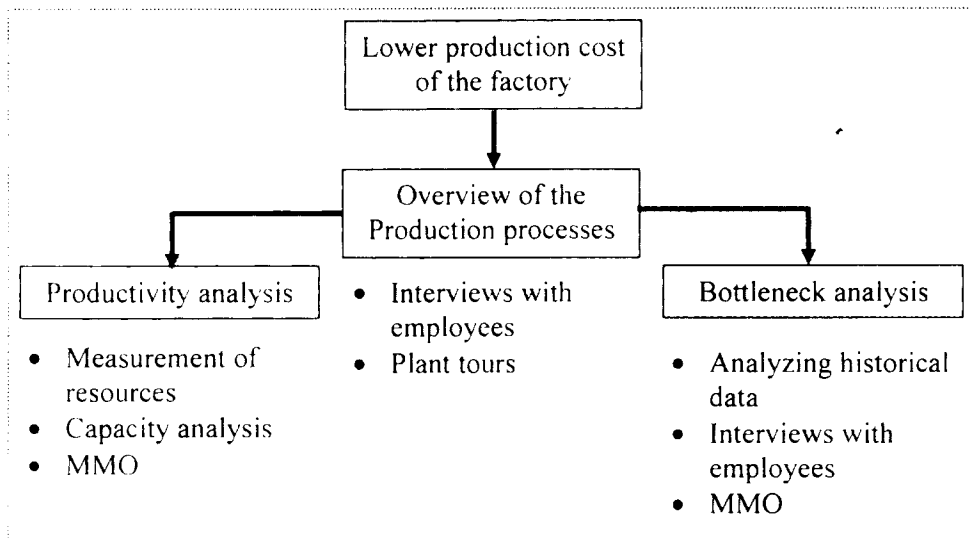


FIGURE 4: OVERVIEW OF OUTLINE AND METHOD

[Source: Own investigation]

The methods of research for the steps 1,2,3 and 4 will be disgust.

Global View of The Factory

A general impression of the company was established by reading documents, interviews with managers and viewing the factory. As a basis for this research the "procescontingentiebenadreing" according to Heijnsdijk_F was used. The complete report of this can be found in Appendix 2 : Kind of organization according to Heijnsdijk_F Rothmans is defined as a bureaucratic organization in all its fullness.

Global View of The Logistical/Production Function

To focus the production process, a questionnaire was made based on the model of "Werken met Logistiek", according to Visser / V. Goor_K, covering 7 major parts of business logistics. This questionnaire dealt with the following headings:

1. Production, planning and controlling
2. Purchasing
3. Inventory management
4. Materials handling
5. Inventory control of finished goods
6. Depots and inventory
7. Transportation decisions

Based on the information obtained by the above questions, the following parts were constructed: A detailed flow-chart (Appendix 4). The material movement (Appendix 5), an overview of the planning-system, an overview of depots, means of internal and external transportation, materials handling and purchasing (Appendix 3). Sorry, not finished..

Analysis of Occupation Levels and Efficiency of The Use of Resources

The core point of investigation consisted of two closely connected parts. One was the bottleneck analysis which measured the efficiency of each step in the production process and the second was the performance indicator which measured the efficiency of all the recourses in the process.

Bottleneck Analysis

To give a structured overview of the capacity and the various tasks within the production process, Aalders_A model of machine use was copied. The model can be viewed in figure 5.

Available production time, amount of production 100%	
Up time	Down time
Real production time	Waiting time
Useful production time	Slack

FIGURE 5: ANALYSIS OF BOTTLENECK

[Source: Aalders_A]

The quantities which were investigated were:

- Hours a day for repairing each machine
- Hours a day of waiting, production on reduced speed or errors in the process
- Hours a day lost due to slack.

Also, the waste of materials was measured with each of the above quantities.

These quantities were measured over 19 major steps of the production process as abstracted from the flow-chart (Appendix 4).

Productivity analysis (efficiency), the performance of the process

The goal of this analysis was to measure if the recourses for production were minimized to each step in the production process. In figure 6 you will see how the resources were involved in the components of logistics management.

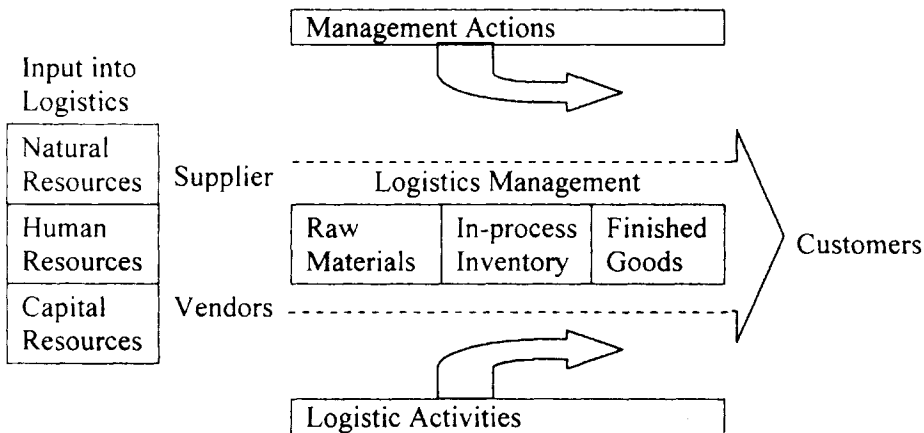


FIGURE 6: COMPONENTS OF LOGISTICS MANAGEMENT [Source: Council of Logistics Management₈]

Per step of the production process, it was measured how many percent of the useful production time was lost due to human, capital (machine) or nature (material).

The maximum possible production was almost in all cases made use of the technical specifications of the machines in that step of the production. The complete overview of the bottleneck analysis and the resources analyses, according to Aalders_A, can be found in figure 7.

The use of machines

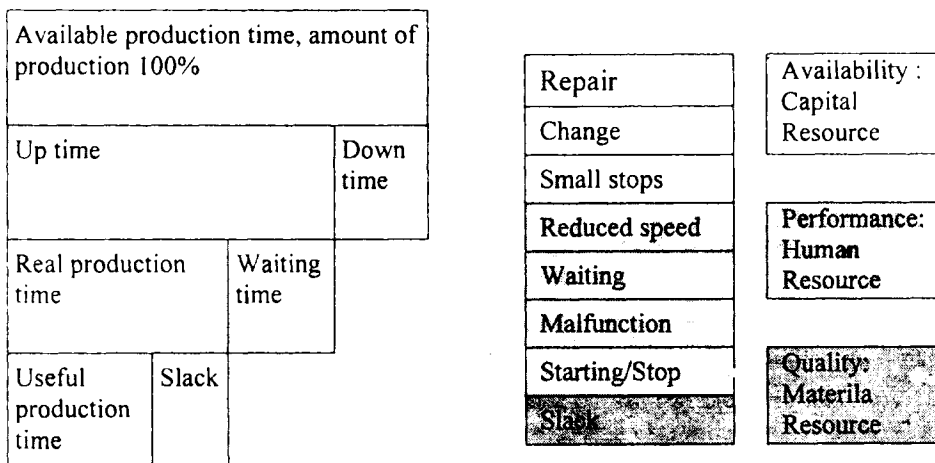


FIGURE 7: ANALYSIS OF BOTTLENECK/RESOURCES

[Source: Aalders_A]

The whole bottleneck and performance investigations are summarized in the efficiency diagram (this will be fully explained in chapter 4).

Efficiency diagram, the combination of bottleneck and productivity analysis

As can be seen in figure 7, the bottleneck analysis and the performance indicator were the same investigation. Only the number of calculation was different. Therefore they were combined in the efficiency matrix as shown below in table 1.

	Nature Resources	Nature Resources	Capital Resources	Efficiency Surplus	
Task 1	% Nature (material)	% Human	% Capital (machine/stock)	Efficiency	} Efficiency Surplus
Total	Overall Average Efficiency				

Define inefficient resource

TABLE 1: SUMMARY OF EFFICIENCY DIAGRAM

[Source: Own Investigation]

To complete this efficiency diagram, various measurements and calculations were undertaken to gather the correct data. The data for the efficiency diagram was for a great deal obtained from a MMO (multi moment opname), according to Tippetj. During a two week time study (normal production week) we made 6650 measurements which spread over 19 process steps (350 measurements per step). The overall occupation level was calculated at 30%. The standard deviation was 2.5%. With a reliability of 95% we can say that the true occupation level was between 25%-35%.

The maximum available production times per step of the production were obtained by interviews with key-employees at each step and by looking at technical machine data. The waste of production time due to machine, material and human unproductivity were subtracted from that and the occupation level was the remaining.

Analysis of the problems

Interesting results from the efficiency diagram were:

- Packaging department (bottleneck)
- Human resource (least efficient resource)
- (High stock levels)

Further analysis of those three "problems" was again based on interviews with employees and some smaller "time-studies".

Results of The Analysis

Because of the duality of the investigation this chapter is divided into two parts. Part one describes the bottleneck analysis, its critical points and results. Part two is the efficiency analysis.

The bottleneck

After the construction of the efficiency diagram, the packaging department could be distilled (occupation level of 64%) as bottleneck. In the packaging department were 13 machines running for 9 products. In Appendix 7 the result of the whole factory analysis can be seen. After this analysis we made the same kind of bottleneck investigation like the previous one only this time is specialized (zoom in) on the packaging department.

In the packaging department was one machine the main-bottleneck. It had an occupation level of 102%, it means that the daily demand was impossible to produce within the normal 8 hours work-time. This machine package the DI and DIM.

The other machines in the packaging department had an occupation level less than 70%. So the daily demand could be managed theoretically. The result of this zoom analysis can be seen in Appendix 8.

Money talks

185 employees were involved directly in the production process in Malang, 106 employees indirectly including the managers on the work floor. 72 employees were part of the staff or working on high level as managers.

- The minimum wage in Indonesia were approximately Fl. 800.- each year. (RP?)
- The average wage of employees at the Malang factory was Fl. 2825,- each year.
- The average of 1 normal labor-hour costs Rothmans Fl. 1,36 each person.
- The average of 1 extra labor-hour (over-work) costs Rothmans Fl. 3,82 each person.

In 1997 there were 65.406 extra labor hours. Combined with 260 working days a year, that means Rothmans had an average of 251 hours a day extra labor hours. Therefore all employees (directly and indirectly involved) were working nine hours a day.

The general measured output in sticks had an average of 9 million per working day (8 hours). The average sales volume of Rothmans was 10 million sticks a day. Therefore one extra labor hour was used every day to make the missing 1 million sticks.

According to the investigation capacity of the various steps in the production process, these costs were not necessary. There was only one machine in the whole factory, which could not match with the daily demand, the average of 10 million sticks. The packaging machine. At this machine there were 6 employees working. They had to work theoretically 1 hour each day extra to match with the daily demand.

Efficiency

A look at the efficiency diagram showed you that the human recourse was the least efficient. See table 2.

Cause	%	Time
Reduced speed	24,8%	2h.
Waiting	23,9%	1 h 55min.
Malfunction of Process	1,0%	5 min.
Starting/Stopping	3,1%	14 min
Total	52,8%	4h 15min.

TABLE 2: INEFFICIENCY OF HUMAN RESOURCES

[Source: Own research]

Roughly 4 hours a day employees were not involved in actual production. A short view about the two main causes can be found below (see Reduced Speed and Waiting Time)

Reduced speed

The Reduced speed figure was the highest waste producer (good for 2 hours a day) but had to be viewed with caution. This figure was a combination of the actual measured number of employees at a given time at the machine and the speed of production. In mathematical form:

$$RS = \frac{\left(\frac{100 (\# \text{ present employees})}{\text{Normal nr. Of employees at machine}} * \% \text{ Working} \right)}{100}$$

Especially the working speed was very indicative. Apart from that, if the working speed was viewed as a problem, one had to consider the culture of Indonesia, which was not a hard working culture, according to Naisbitt₁₁. This made the reduced speed factor that was not a main point of interest for further investigation. Only a remark was made that this factor could be an interesting point for further study. A special point of interest could be the wage system of Rothmans.

Waiting time

Holiday at Rothmans. Each working day 1 h and 55-min the production employees spend with waiting. Roughly 70% of this time was waiting for orders and 30% for materials.

The waiting time for orders occurred because the planning-system did not match with the factory demand (otherwise there would be no waiting for orders or materials, would there?). The waiting time for materials, indicated problems with the materials handling.

Analysis of the production planning resulted in the insight that the planning-system had a correctness of 27% (std. 33%), see Appendix 9, and that's amazing.

Let's take a look at the factory:

A department got its production orders every morning from the boss. As soon as they wanted to start producing, they find out that input materials were not available. They called for the boss. The boss now looked in the various depot's and changed the planning again. This change however was not briefed to the other production chefs.

The little story indicated three major problems of the planning/ controlling system:

- The centralization of the decision-authority.
- The freelancing of the various decision-makers.
- A planning-system that can not cope with this.

Also: The current planning-system was focused on producing to customer wishes. The customer was taken much to far into the organization. Because of the predictability of the sales, an on inventory focused planning-system would be enough for Rothmans.

The above gave three possible improvement targets. Reorganizing the decision authority, restricting the freelancing of the various decision-makers or making a planning system that could handle those two situations.

The centralization of the decision authority

Discussions with Rothmans resulted in the point that it was not wishful to decentralize the decision authority. Also because Rothmans was a very bureaucratic organization and the culture of Indonesia which was not strong in making personal decisions. At this time Rothmans had 185 direct production workers. 5 department managers made the decision for their department to change the production process to another product. This made the span of control on average 37 and this false within the span of control stated as normal by Heijnsdijk_F. Therefore, the decentralization of the decision authority was not rejected as point of improvement.

The freelancing of the various decision-makers

The 5 major decision-makers change: the production planning on a regular basis (always). The causes therefore were various, starting with unavailability of input material, ending with the company policy of minimum runs etc. The most heard argument was that the department managers check the end-inventory and upon that information they rearranged the production process. The decision-makers did not plan and produce systematical. The communication between the various decision-makers was not optimal.

A planning-system that can not cope with this

The current planning-system was focused on a market forecast. It was a kind of simplified MRP-system. Example of MRP could be written in Gaither_D. On paper this system worked well but problems came awake at the daily and monthly planning's meetings. The various changed in the planning were discussed but the fact that storage times had to be around three days, complicated the overview of this meetings. Another problem was that the planning-system was based on a customer demand. The actual planning at Rothmans was in the first instance based on the marketing forecast but then mixed with the inventory levels. This outcome was the actual production planning. There was a gap between the marketing planning (order based, made in Jakarta) and the production planning (stock level based, made in Malang).

Further, changes in the production process should also be changed in the planning system which was mostly not done.

This indicated that the current way of planning did not support the way the factory runs. Inefficient communication and a bad planning-system were the causes here for.

Changing the planning-system

To improve the planning-system and improve the communication, three major choices were open:

- Implementing a consistent customer-based planning system (MRP).
- Changing to inventory-based production.
- Improving the clarity of the total view in the planning's meetings.

A customer-based planning-system (MRP)

If the trend of the head-office in Jakarta was followed, it was wise to implement an all order-based planning-system. However, this had some major drawbacks. First of all, a MRIP system means that every customer was noted by

it selves. This means, or very short runs or grouping of a lot of orders on a huge planning-board. Apart from that, one of the advantages of an MRP system was that one exactly could produce what the market wanted at any given time and therefore allowing an in-stable market demand. However, the market demand for Rothmans was very predictable and constant. Further to that, If one planned production to orders, the KOOP would be before production. At Rothmans the KOOP was at the end inventory. So all activities should be based on planning. For the above reasons, a MRIP kind of system was rejected.

Inventory-based production

In favor of the factory at Malang and the KOOP, one worked according to an inventory based planning. This was a very favorable solution. Specially, if one took into account the possibilities of fixed production runs.

Improving the clarity of the total view in the planning-meetings

Another possible solution was improving the information management at the planning's meetings. This solution was probably not the most "beautiful" in business engineering terms but the easiest one. It was also the least time and energy consuming for Rothmans.

Conclusions

Bottleneck

Conclusions:

- The production process at Rothmans had in general a high capacity. Only 30% of this were used in 1998.
- Occupation levels of the factory could not justify extra labor hours last year.
- The packaging department had the lowest capacity. Therefore this department was the bottleneck.
- The DI and DIM packaging machine had not enough capacity to pack the daily demand in the normal 8 hours working time. This machine was therefore the main bottleneck. It had an occupation level of 102%.
- Despite expectations the process showed a rather low down time and slack figure.

The Human Resource

A better planning-system would reduce the waiting time for the employees (now 2 hours a day). The reductions of the waiting time by only one

hour would result in a total annihilation of the extra labor costs and therefore a cost reduction of app. RIP 1 billion a year.

¹ If we take a deeper look into the culture at Rothmans and Indonesia in general, it was not likely that students or low level employees gave their opinion about responsibilities of their superior. Therefore all the solutions given had to be implemented by one of the managers who had to be convinced about the solution and its effect.

Implementation of Model

So let's talk structured. Let's improve the construction of the planning at the Rothmans factory. The main problems were caused by the minimum storage time of all stock (3 day's). A further problem was the various input material (bandrol, filter etc) and getting them on time to the production.

To structure the meetings an Excel sheet had been made covering one production year. The marketing figures had to be inserted into this. The logistic manager then regrouped the orders to date and leaving figures. Then, the department managers had to group the production runs into efficient runs and level the secondary materials to this.

The working of this sheet had been explained to the managers. They were willing to use it. If a department could not fulfill the planning, the planning-system was changed according to this. A remark was made that the stock levels probably would rise, which was true. But it did not make any difference in financial aspects. The raw materials were lying for 1 year on stock anyway.

A point of remark was made that this only could be a temporarily improvement. To smoothing the production process even more, the whole planning-system had to be changed into an on planning based information system.

A long time improvement would be an inventory oriented planning-system. It would optimize its production efficiency. Especially when one took into account the possibility of producing to a fixed weekly production schedule. This would not only improve efficiency but also significantly clear the planning and production routine.

Evaluation

The strength of the investigation was the way the methods were used. The methods fitted exactly in each other. That made the investigation as a reliable investigation. The results of the investigation were also in common with the problem description.

The weakness of the investigation was the missing of a financial security of the recommendation. Of course Rothmans liked to know what the amount of cost reduction was if they follow the recommendation. In the first place it was hard to get the objection of the investigation into a quantitative

number. After the investigation it was declared, the results of the investigation were more indicative than absolute. This was because of the way of investigation following Dutch students' levels.

It was going to be hard for Rothmans to adapt on the way the investigation was held and naturally the results of the investigation. It was not suitable with the Indonesian culture. The problem lied on the way how to express one's criticism. Normally Indonesians did not give direct criticism to each other and most of them feel reluctant to give criticism.

The moral for Rothmans was interesting. It was the first time researchers observed the production process. The key-employees had now an idea of how outsiders look at the process of the factory in Malang. They could learn from this point of view.

Some interesting literature: Appendix 11: Copy of newspaper message about increasing the price of cigarettes Appendix 12: House of Dunhill

References:

- | | | | |
|---|---------------------------------|---|------|
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| B | Council of logistics management | Strategic logistics management (Lamberts) | |
| C | Edwards | Strategic logistics management (Lamberts) | |
| D | Gaither | Production and operations management | |
| E | Goldratt | The goal, the theory of constraints | |
| F | Heijnsdijk | "Vitale organisaties" | |
| G | In't Veld | "Analyse van organisatieproblemen" | |
| H | Naisbitt | Megatrends Asia | |
| I | Potgens | "Het lamp model" | |
| J | Tippett | Reader of Industrial Engineering (V. Vessem) | |
| K | Visser/V. Goor | "Werken met logistiek" | |

Appendix 1: The Rothmans organization

P.T. Rothmans of Pall Mall Indonesia is a part of the Pacific Region of one of the world's major international tobacco groups of the Rothmans International Group. Rothmans International Group has been producing and selling cigarettes for over 100 years and over those past 100 years the company has grown out to be a multinational organization the 4th largest tobacco seller of the world. Their products are sold in over 200 countries and involve worldwide per annum sales of approximately 200 billion cigarettes. Some 80 factories around the globe are constantly involved in producing this demand.

The Rothmans international Group produces mainly white, non-krtek² cigarette but it is also a leading world supplier of cigars, fine-cut and pipe tobaccos. The major trademarks of the Rothmans international Group are Rothmans, Dunhill and Peter Stuyvesant, which are among the top 15 international cigarette trademarks of the world. Apart from that they produce a broad range of local cigarettes and tobacco brands depending on each global market.

To compete in the global market, Rothmans International Group is organized in geographical regions and different Rothmans Holdings Ltd. Rothmans of Pall Mall Australia Ltd. is a public company that is owned for 50% by the Rothmans International Group. It is responsible for the Asia Pacific cigarette region, covering Australia, Fiji, Indonesia, Papua New Guinea, New Zealand and the Philippines. Figure 8 shows how the Asia Pacific region is organized.

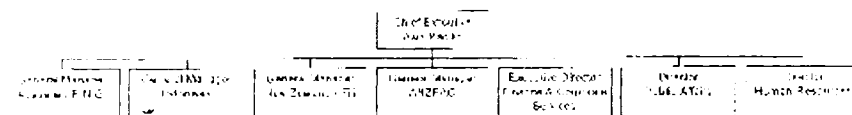


FIGURE 8. OVERVIEW OF ROTHMANS ASIA PACIFIC

[Source: own investigation]

PT Rothmans of Pall Mall Indonesia

In 1931 NV Tabacofina Belgium established a factory in Malang. In March 1966 the factory was transferred to Rothmans of Pall Mall Australia Ltd. They renamed it to PT Rothmans of Pall Mall Indonesia and was officially reopened under its new name on the 1st of September, 1967.

The company is one of the largest white cigarette manufacturers in Indonesia. The company produces domestic brand and international brands of white cigarettes. The products that Rothmans of Pall Mall Indonesia produces are Dunhill and Mars Brand for the international market and Kansas, White Horse and Blue Ribbon for the domestic market. These brands are available in different sizes, packages and menthol versions.

The head office of Rothmans of Pall Mall Indonesia is situated in Jakarta. The production and storage for raw materials and finished goods inventory are maintained in the factory in Malang.

² Krtek cigarettes contain 50% tobacco and 50% krtek. The filter of the cigarette is coated in a glucose layer.

Appendix 2: Kind of organization according to Heijnsdijk

To get a good impression of Rothmans and to know in what kind of directions the change-ability targets are going to be Rothmans was characterized according to Heijnsdijk:

Quantities

Organization

Assets of Rothmans:

If we take a look at the fixed assets of Rothmans we can see the following trends:

- The fixed and current assets are respectively divided into 47% / 53%, see Appendix 10.
- The packaging and stick-making machines are case sensitive. The other machines can be used for all kinds of tobacco.
- The division liabilities / equity is 14% / 86%. see also Appendix 10.

Because of the high level of equity Rothmans can invest and change rather flexible. The technical lay out of the factory allows, apart from packaging and stick-making, production of different kinds of tobacco.

Organizational culture

- The organization is hierarchies, see the Rothmans organization chart on page 9.
- The task, responsibilities and allowances are strictly divided hierarchically.
- There are no career opportunities for the lower levels.
- The average age of a production worker is 41.
- The core-philosophy of Rothmans is to make of quality of cigarettes. This philosophy might not to be felt within the factory.
- There are broad planning and controlling system. Police officers are found to control the factory.

From the above we can conclude that the culture of Rothmans is formal, stiff and strong. Changes in the company will have difficulties to gain foothold. Changes have to be introduced in a strongly hierarchical manner.

800 employees are involved in Rothmans. 363 of them at the factory in Malang, 40 in Jakarta and the rest spread all over Indonesia (working at depots of Rothmans, truck-drivers etc.)

Persons

There is a great difference between the management and the other employees. The top-managers are mainly European and Australian people (situated in Jakarta), the middle managers are Indonesian people graduating from overseas university and the operation level are lowly-educated Indonesians.

- All the problems are firstly discussed with the first Western person in the hierarchical line, not depending on the function of the person. Indonesians have difficulties with this policy.

- Every employee is mainly focused on his or her own department, function and authorities
- The people really want to cooperate with each other.
- The power of the organization lies on the top management. There are no internal coalitions within the factory

Environment

To describe the environment of Rothmans, some divisions have to be made. The following divisions are according to Heijnsdijk's²⁶ concerning with organization diagram:

Market

- **Transparent**: an equal amount of competitors without new players. Always the same brands: the customers-behavior doesn't change
- **Static**: Probably there will be no new competitors in the cigarettes-market. Also to bring a new product on the market is not expected. The Indonesian consumer has a constant smoke-behavior of the same brand. The price and the availability are the most important marketing-instruments
- The market is highly competitive but transparent
- The smoker is loyal to his brand.
- There are no external coalitions
- The competition is fair and open

Suppliers

- Rothmans has fixed suppliers of raw materials. These suppliers depend on the quality of the tobacco-harvest and have to be arranged every year differently.
- Rothmans International for the international tobacco coordinates the purchasing. The domestic tobacco is purchased by an Indonesian broker (policy of the Indonesian government)

Government

- The government makes everything complicated. Policy and rules are not always completely clear
- Can be dynamic: depends on payment (bribes)
- Rothmans has to follow the rules of the government, otherwise a lot of problems and big sanctions will be freed

The variables

Heijnsdijk²⁶ has three subchapters of how to deal with this kind of information.

Strategic variables

How does Rothmans deals with the described surrounding?

Rothmans only produces for the Indonesian tax-markets. (Tax-free sellers are supplied by Rothmans Singapore). Rothmans sells 5 brands: Dunhill in high level class for golf-players and Chinese, Kansas in middle class for factory-workers, Blue Ribbon and White Horse as bottom class, especially cheap and Mars as the cheapest alternative to smoke.

The most important sales strategies are the prices of the cigarettes. This is for the whole Indonesian cigarettes market the same. The second point is the availability of the products. Because of the size of Indonesia, almost the same size as whole Europe, there have to be difficult logistical strategies to compete the whole country. That is why

Rothmans doesn't deliver to all islands. (equal to her competitors) The competition between the cigarettes-companies is fair and open. The most important thing is to deal with the best marketing-mix instruments.

Design variables

- They have a strict function-description. Everybody has his own job and tasks
- The organization has a functional structure.
- Rothmans is strongly horizontally centralized.
- There are no many tasks delegation.

Steer variables

- The relations in Rothmans are most of them formal and are almost like in the colonist-period. In principal they try to standardize the jobs and tasks, but the creative soul of the Indonesians have most of the time more successful.
- There are hierarchies and high-handed power-ship.
- There are few internal education programs.
- The planning and controlling systems are strongly horizontally centralized and formal.
- Every delegated task is from the top to the bottom.

Management filter

There is only one possibility in the factory of Malang to adapt to the changes in the surrounding and everything that is delegated. In Jakarta they have also problems with this matter because they have to follow the lines and regulations of Rothmans International.

Summary

- The strategic variables are pointed out in the market to convince the quality of the product.
- The design variables are centralized and the factory is arranged functionally
- The steer variables are formally and standardized, which are delegated from the top of the management.
- The environment is stable and transparent.
- The organization is built top-down.
- The individuals are lowly educated, not concerned the company and docile.
- Because of hierarchical difficulties (Malang - Jakarta - Australia) the management filter is thick.

So we can conclude that Rothmans according to Heijnsdijk is most likely a bureaucratic organization

Appendix 3: The model of "Werken met Logistiek", according to Visser / V. Goorx

This model covers the 7 major parts of business logistics:

Production, planning and controlling

Purchasing

The most important raw materials (tobacco) are mainly purchased by Rothmans International. The purchasing of paper, glue, filter etc is arranged by employees of the purchasing department in Malang.

Inventory management

There are a lot of inventories in the production process. The level and duration of the inventory are based on the quality of the product. Measuring the quality of the tobacco is only for specialists, not for this investigation. This quality measurement is especially interesting for the long time storage. The tobacco has to be stored there for at least half a year. This is an incredible big investment.

Materials handling

The internal transportation is mainly truck-driving from and to the long time storage depots. In the rest of the factory are the departments close to each other. That means that the output of one is directly the inventory of the next step. From the inventory to the next step is mainly human energy.

Inventory control finished goods

The inventory of finished goods is also a critical part of the investigation. The cigarettes have to be stored in this hall for at least 7 days, otherwise the products do not have good quality.

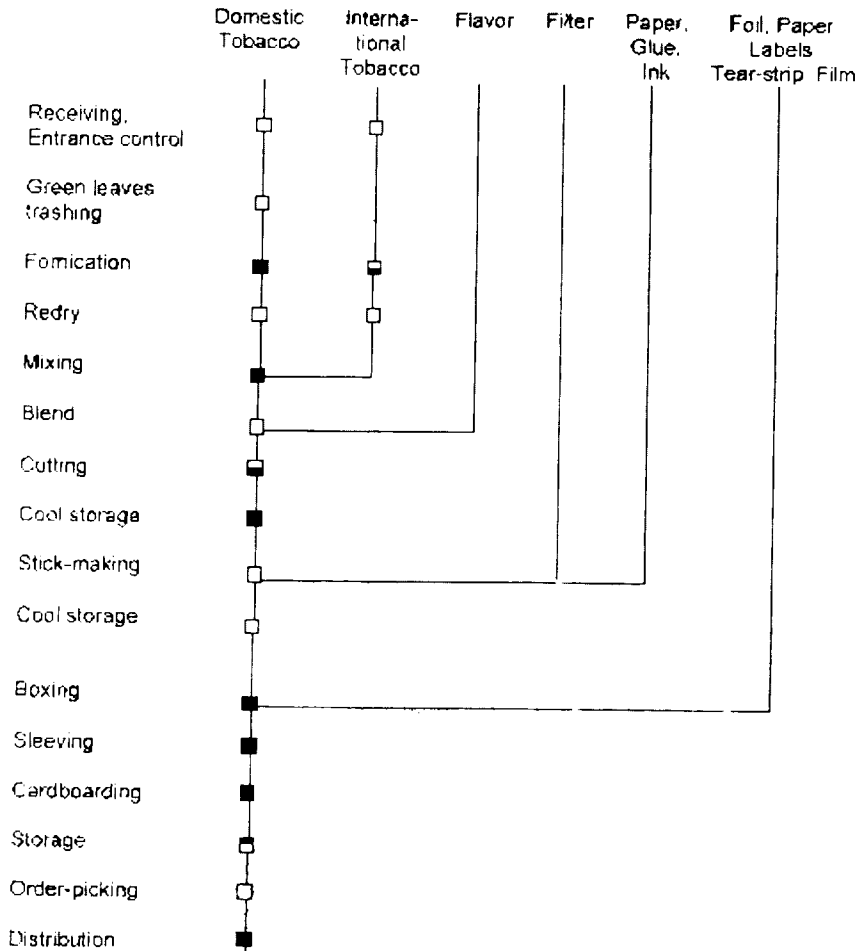
Depots and inventory

The depots and inventory outside the factory of Malang is organized by the management in Jakarta.

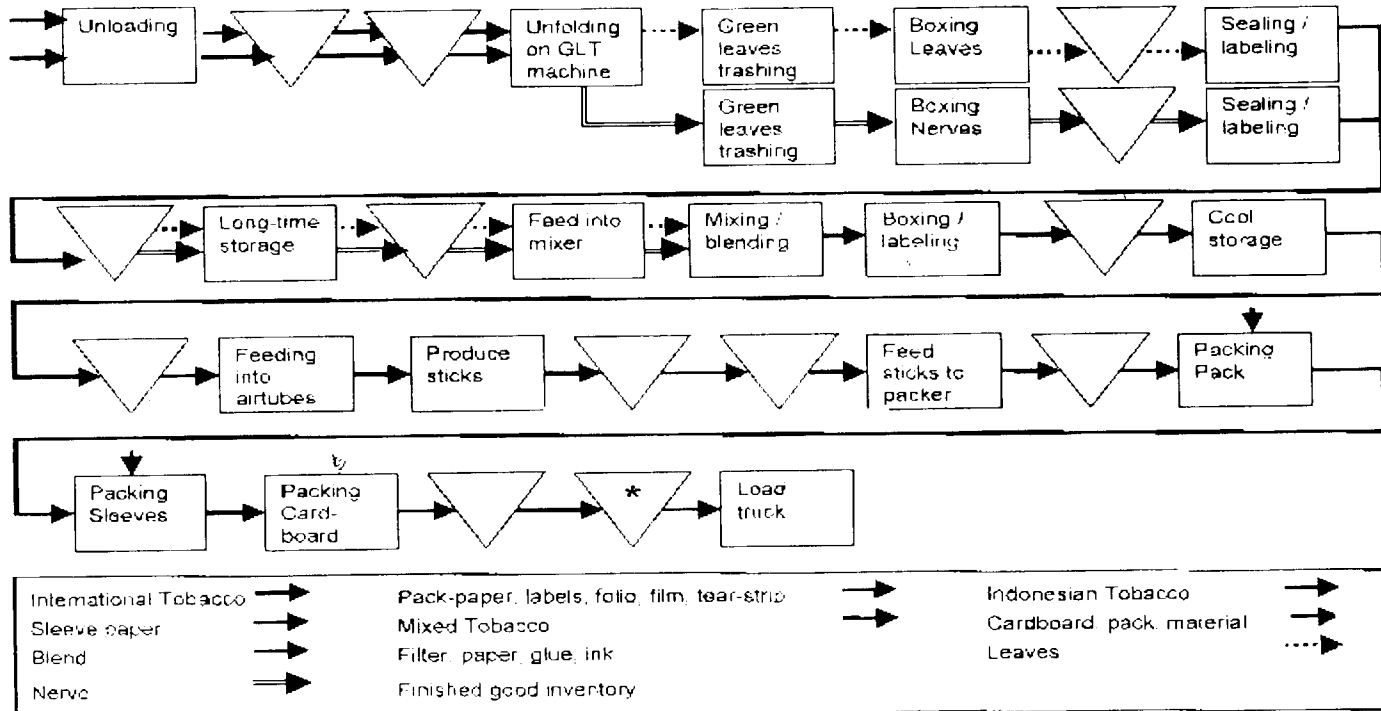
Transportation decisions

The deliveries to the depots and distributors are organized by the management in Jakarta.

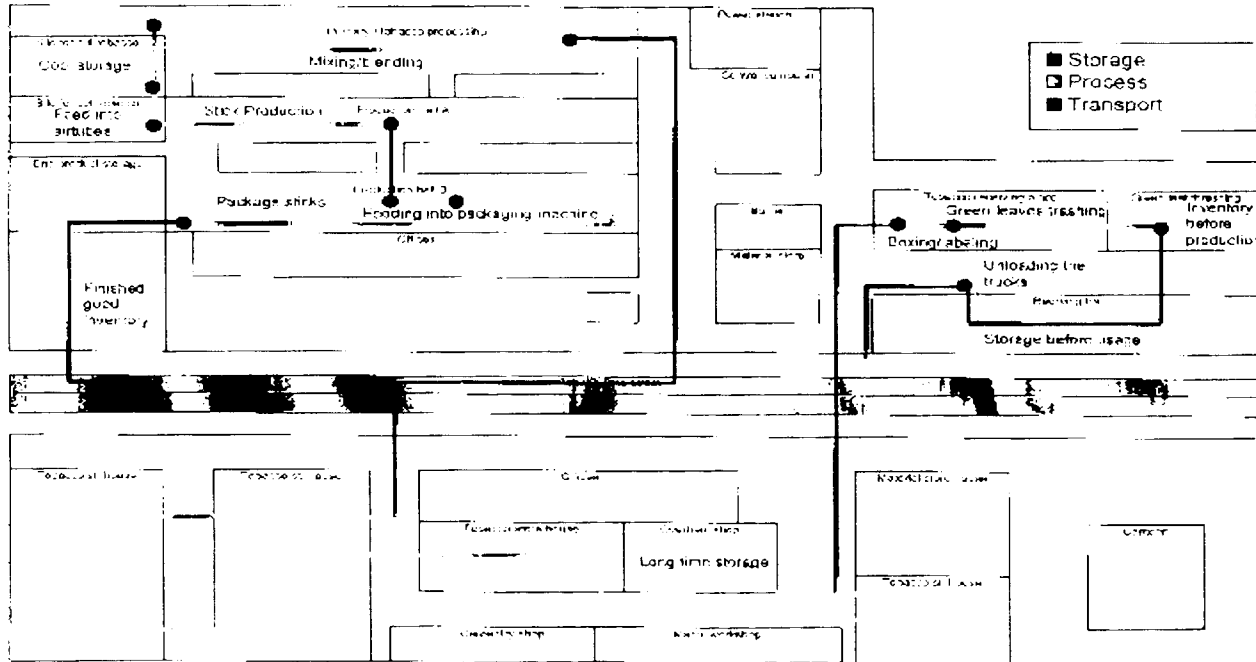
Appendix 4: Material flow



Appendix 5: Flow process chart



Appendix 6: Lay out of the factory / Material flow



Appendix 8: Analysis of the packaging department

Packaging Machine	Sales/volume	Human	Nature	Capital	Efficiency surplus	#	Units	Repair	Change	Small stop	#	Reduced speed	Waiting	Malfunction of process	#	Starting/stopping	#	Remarks
Kingsize HP	81%	11.8%	1.1%	22.8%	64.3%	8.7	sticks	1.0	0.1	0.1	25.6	0	0.4	0.1	12.8	0.1	73.2	7 machines
Supersize HP	12%	0.0%	0.2%	3.8%	102.3%	1.1	sticks	0.3	0	0	3.6	0	0	0	1.8	0	10.5	1 machine
Non filter SP	18%	2.5%	0.2%	29.3%	68.0%	2.4	sticks	1.0	0.2	0.1	3.6	0.1	0.1	0	1.8	0	10.5	1 machine
Supersize SF	7%	21.5%	0.2%	18.6%	59.7%	1.1	sticks	1.0	0.3	0.2	3.8	0	0.1	0.3	1.8	0.8	10.5	1 machine
Kingsize SP	2%	35.8%	0.2%	45.1%	18.9%	1	sticks	2.7	0.4	0.2	3.6	0.4	0.4	0.7	1.8	0.8	10.5	1 machine
Total	100%		1.8%			14.3	sticks				40				20		118	11 machines
Average		11.7%	1.8%	22.8%	64.3%	1.3	sticks	1.4	0.2	0.1			0	0.1	0.2		0.3	

Human Resources

All the human energy consumed by the production process.

Nature (material) Resources

All the materials consumed by the production process.

Capital (machine) Resources

All the capital which is consumed by the production process.

Efficiency surplus

Occupation level.

Average (without storage)

The average of all the steps in the process, without the storage.

#

Number of units can be produced during this time (in millions).

Units

Sort of units.

Repair

Time that is lost to repairing machines.

Change

Time that is lost due to changing the machine to a new product.

Small stop

Time that is lost to small stops of the machine.

#

Number of units lost to small stops (in thousands).

Reduced speed

Time lost to reduced production speed.

Waiting

Time lost due to waiting for input material.

Malfunction of process

Time lost to malfunction of the process.

#

Number of sticks lost due to malfunctions of the process (in thousands).

Starting/stopping

Time which is lost to starting and stopping the process.

#

Number of units which are lost due to starting and stopping the process (in thousands).

Appendix 9: Accuracy of the planning

Average demand and standard deviation:

	09-Feb	10-Feb	11-Feb	12-Feb	13-Feb	16-Feb	17-Feb	18-Feb	20-Feb Total	U	STDEV
KanP	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	1.0	2.9	0.3
BLRSS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
KanKF	2.8	0.0	0.0	0.0	2.8	0.0	5.8	1.0	5.2	17.2	1.9
KanM	0.0	0.0	0.0	0.0	1.3	0.2	1.3	0.5	5.4	6.6	1.0
KanL	0.0	0.0	0.0	0.0	0.3	1.1	1.1	1.2	4.4	8.1	0.9
KanMLi	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.4	0.0
DKS	0.0	0.0	0.0	0.0	0.1	1.0	4.0	0.1	1.8	6.9	0.8
DKSM	0.0	0.9	0.0	0.0	0.1	1.0	1.1	0.1	0.9	4.1	0.5
Di	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.3	0.0
WHRLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
TOT3RHL	2.8	0.9	0.0	0.0	4.5	3.2	15.2	2.7	19.4	48.7	5.4
Di	0.0	0.0	0.0	0.0	0.1	0.6	1.2	0.0	1.0	2.9	0.3
DIM	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.7	1.0	0.1
TOT2RHL	0.0	0.0	0.0	0.0	0.1	0.6	1.3	0.0	1.8	3.9	0.4
ToT Cig	2.8	0.9	0.0	0.0	4.6	3.9	16.5	2.8	21.2	52.5	5.8
MBS	0.0	0.0	0.0	0.0	95.0	0.0	100.0	16.0	400.0	1465.0	162.8
MBP	0.0	0.0	0.0	0.0	74.2	16.2	54.0	16.2	66.6	229.2	25.5
											1.0
											2.8

Average correctness of the production planning

KanP	39.8	25.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BLRSS				97.2	87.1	42.9	94.4				
KanKF	88.9	96.4	87.7	0.0	0.0	87.2	94.3	91.5	91.8	91.8	91.8
KanM	86.7	40.4	58.0	56.4	93.8	88.1	83.0	0.0	95.6	95.6	95.6
KanL	6.2	0.0	82.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KanMLi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DKS		68.3	47.9						0.0	0.0	0.0
DKSM								43.6			
Di									0.0	0.0	0.0
WHRLS											
TOT3RHLP											
Di		62.9	38.7	0.0		0.0	0.0				
DIM					13.2						
TOT2RHLP											
ToT Cig											
MBS			77.4	21.2	0.0		0.0	99.6			
MBP		0.0	0.0	42.7	0.0	49.8	92.5	71.1	70.6	70.6	70.6

Differences greater than 100% are rated also 0
 ■ make something not on schedule
 ■ schedule something and not produced

Average accuracy plan vs actual: 28.5
 Standard deviation: 37.2

Appendix 10: Assets of Rothmans

Fixed vs current assets

Liability vs equity

Description	Fixed assets	Current assets	Total	Description	Liabilities	Equity	Total
Cash / bank		2191791034		Trade payables	3874351126		
Short term time deposits		13000000000		Excise duties en VAT	5204415315		
Trade receivables		6645064044		Affiliates/parent company	790706196		
Receivable from affiliates		1349627234		Other payables	2470609072		
Other receivebles		767845144		Pension Fund	3300000000		
Inventories	16114619423	3282375286		Accrued expenses	1763869500		
Prepayments	0	3286844696		Shares		104296244000	
Buildings	610128480			Revaluation increments		1951987794	
Machinery & Equipment	3413256048						
Furniture & Fixtures	1314413330						
Motor vehicles	3087807115						
Land rights	27783000						
Refundable deposits	236361762						
construction in progress	1575135651						
Long term prepaid rent	906695150						
Total	27286199959	30523547438	57809747397	Total	17403951209	106248231794	123652183003
Percent	47	53	100	Percent	14	86	100

The Jakarta Post

The journal of Indonesia today

Cigarette prices set to rise again

By Steve Emilia

JAKARTA (JP): A man reaching for his usual brand of cigarettes at a kiosk on Jl. M.H. Thamrin hesitated. "That's impossible. I paid Rp 1,800 yesterday and now it's Rp 2,500," he said.

He handed back the packet of Sampoerna A Mild and walked away.

Cigarette prices already increased a month ago, but smokers will be reaching even deeper into their pockets when a government decree raising retail prices of all brands of cigarettes by between 60 percent and 120 percent comes into effect Wednesday.

The government, pressed for cash in times of an economic crisis, is punishing smokers as well as drinkers by hiking their duties to bolster its revenues.

Given the addictive nature of cigarette, few people are expected to quit smoking just because the prices double.

Some smokers however are adjusting in different ways, like

switching to cheaper brands.

Gunawan, a bank worker, said he had switched from Marlboro to Sampoerna — because the former brand had become both harder to find and beyond his means.

Marlboro can still be found at some street stalls but at an unbelievable Rp 3,000 for a twenty-pack instead of the usual Rp 2,200, said Gunawan, who has smoked since junior high school and has no intention to quit.

Popular brands have already disappeared from supermarket shelves. Typically, supermarket checkout counters only have two or three of the lesser popular names.

"I'm sorry, but we no longer have Duhall," said a cashier at Hero supermarket in Plaza Senayan mall to a customer.

"I bought three cartons of

Virginia Slurs right after I read the news in a newspaper," said Intan, an employee at a private bank. "I think I should buy more, or I will have to pay double the usual price," said Intan, who took up smoking when she attended university.

Switching brands has its own problems. David, a university student, said he had been coughing all night after switching to a local, cheaper brand.

"I'll have to look for another brand again," he said.

Prices of local kretek (clove-blended cigarette) brands have also soared before the decree becomes effective.

Gudang Garam and Djarum Super, normally costing Rp 1,400 a pack, now sell for up to Rp 2,000, while Djie Sam Soe previously Rp 2,200 a pack, sells for up to Rp 3,000 a pack.

High prices are far from good news for cigarette vendors.

"I sell fewer than 10 packs now. I used to sell four cartons a day," said Ahmad, a vendor in

Bendungan Hilir in Central Jakarta. Each carton contains 10 packets of cigarettes.

Some people, usually those with less money to burn, have locked the habit all together, while others are cutting down.

Maman, a fruit seller in Bendungan Hilir market, had quit as soon as he learned that his brand had increased by Rp 1,200 per pack this month.

"I'd rather buy food for my children than pay that much," said Maman, who used to smoke two packs of Marlboro Lights a day.

He said giving it up was not easy. "My mouth feels dry and bitter, but I chew mint candies to remove the taste."

There are those who cheer the government's decree.

"I can save about Rp 75,000 a month from my family budget as my husband has quit smoking," said Halimah, whose husband is a tailor.

Anti-smoking campaigners also laud the move.

The Indonesian Women Against Tobacco (WITT) says the decree is expected to indirectly help its cause to protect women and teenagers against the "ills" of tobacco.

"We're very happy because it will make more people stop smoking," said Enny Sukanto Hehuwal, WITT's deputy chairwoman.

WITT is affiliated with the United States-based International Network for Women Against Tobacco.

Once a smoker herself, top model Enny knows too well the odds of locking the habit. "One should have strong willpower and support from others to stop smoking. And once you stop, never try it again," said Enny, who used to smoke two packs a day.

She quit seven years ago after she discovered that cigarettes made her skin dry, her hair smell and ruined her clothes. Now Enny appears in a TV commercial for a body lotion.

Jobs — Page 2

The House of Dunhill

If Richard Dunhill didn't exist, his company would probably invent him. No casting agency could have selected a man so perfectly tailored for his role as Chairman of the Board. With his aristocratic head of silver hair, sculptured grey beard and urbane manner, he looks like an elder statesman; he epitomizes the qualities which his firm represents, and to which its customers devoutly aspire: elegance, refinement and class.

Mr. Dunhill bears a striking resemblance to his grandfather Alfred who founded the firm, even to the pipe he puffs. While we talk in his London office, the tobacco which he mixes for himself from 16 exotic blends perfumes the stately room with a sweet yet masculine aroma that suggests after-dinner port taken in the library. Such is his air of understatement that even his solid gold laticed watchband seems to peer discreetly from inside the immaculately stitched sleeve of his classic grey suit.

The man whom staff called "Mr. Richard" has an avuncular twinkle in his eye but wisps of gentle mockery curl about the office along with the smoke. Richard Dunhill's style displays nothing so blatant as charisma, and his well-bred distance owes more to reticence than remoteness. Finesse restrains him from claiming any personal credit for the company's achievements. He recoils visibly when confronted with personal questions and ascribes the firm's success to team effort.

Although Dunhill became a public company in 1923, Richard is the third generation Dunhill to be its chairman. "It is desirable for the head of the company to be identified with its products," he says. "The tradition which my grandfather started has been maintained because the family was more conscious of his standards than other would have been. This gives continuity to the company and confidence to the customers."

Each generation has made an outstanding contribution to the company. "When my grandfather retired he was convinced the company would collapse, but his brother Herbert, a financial wizard, ran it by remote control from Monte Carlo," Mr. Dunhill chuckles. His Aunt Mary who preceded him as Chairperson was a grandmother figure who occasionally smoked a pipe. An astute businesswoman who expanded and diversified the company's operations, she was so dynamic that on the day she died, at the age of 81, she was out inspecting new merchandise!

Richard Dunhill's identity is so tightly interwoven with the firm that when asked about his own personal goals, he quips, "Well, they can't promote me any further! As Chairman I've reached the end of the line, but what drives me now is the challenge of ensuring that this company continues to make profits and superbly crafted products."

Now aged 62, Richard Dunhill delights in having spent his entire working life in the service of the same company. He has never wanted to do anything else. "Ever since I was at school, I assumed that if I behaved myself I would become a director. That has always been my ambition."

But there was no nepotism at Dunhill after serving in the army, Alfred's grandson had to learn the business from the bottom.

"It taught me a great deal about the company. Besides, all I knew when I started was how to stick bayonets into people and how to signal in morse code! I certainly wasn't spoiled. I learnt a lot about pipes and lighters working in the repair division! In the wholesale order department, they gave me a car, which I wouldn't had." His desire to see the family involvement in the firm continue will probably be realized as his son Simon, 25, is currently marketing manager in the Smoker's Division of the company.

As we talk, a pale April sun slants through the windows and illuminates an 18th Century painting depicting a woman smoking a pipe - a self-portrait of one of the first women smokers, Mme Le Brun, he explains. Beside it hang other paintings of pipe smokers, part of his grandfather's collection. The family crest that hangs behind his desk, however, is a recent addition.

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As we talk, a pale April sun slants through the windows and illuminates an 18th Century painting depicting a woman smoking a pipe - a self-portrait of one of the first women smokers, Mme Le Brun, he explains. Beside it hang other paintings of pipe smokers, part of his grandfather's collection. The family crest that hangs behind his desk, however, is a recent addition.

"I designed it two years ago", he says and points to the motto with the stem of his pipe. "Activity, Integrity and Enthusiasm. That's what I believe in" The emblems on the coat-of-arms are a horseshoe denoting his grandfather's original business, tobacco leaves symbolising the origins of this company, a torch signifying fire, and a clay pipe.

The Dunhill empire began in 1907 when Alfred Dunhill opened his tobacconist shop on the same site in Duke Street where the office and shop stand today. Richard Dunhill believes that his most valuable trait is adaptability. It was his grandfather's strength too. An entrepreneur and inventor, Alfred started work in his father's saddlery business. Smelling a whiff of petrol in the winds of change, his father turned to producing motor car accessories such as big mittens foot warmers and special hats. The Dunhill talent for inventing ingenious gadgets soon manifested itself with Alfred wind-resistant pipe whose tiny windshield stopped the tobacco from becoming an inferno as drivers tore along the roads in their cars. The success of this invention prompted him to open his own business, specializing in smoker's requisites.

Alfred's first customers were spoilt young fops with silver-topped canes and amber cigarette holders who revelled in the indulgence of having their personal blends mixed by the owner, recorded in his special book, and kept in a private humidor. Dunhill's famous cedar-panelled Humidor Room, filled with the Havana cigars that connoisseurs dream about, is still located at the back of the Duke Street shop.

Besides demonstrating a flair for creating a mystique around a commonplace activity, Alfred was determined to succeed by providing his customers with the best of everything and his philosophy that his merchandise must be useful, dependable, beautiful and the best of its kind, has remained Dunhill's guiding principle to this day.

As we sip Earl Grey tea, my gaze falls on a highly polished cabinet whose shelves display miniature scales, containers of tobacco and rows of pipes. Richard Dunhill smiles "Our do-it-yourself tobacco blending cabinet," he says. "We haven't made them for years. Another unusual item we used to make was a Leap year Pipe Case which had a different pipe for each day of the year. It contained 366 pipes arranged in 12 drawers, so that if the owner took a vacation he could remove that month's supply of pipes and take it with him! Sunday pipes had gold bands with a white gold emblem. Those were gimmicks and although not profitable, they did create interest. Today, our product range is more streamlined.

Imaginatively designed, superbly crafted products, sometimes with a whimsical touch, have always been Dunhill's trademarks, but over the decades their ingenuity has been tested by the eccentric requests of some of their illustrious patrons

Stalin ordered a pipe with a solid gold mouthpiece; a curious request for the leader of the world's workers. King Farouk of Egypt wanted specially designed scissors to cut the hairs in his nose. One Japanese customer requested a lacquer cigarette case shaped like a sandwich with the ham protruding. Most bizarre was a request for a lighter covered with human skin. In the 1930s, an Indian Maharajah ordered a trick-opening box made of 18ct gold and swore the manager to secrecy about the way it opened. The following day, the Prince of Wales' equerry arrived at Duke Street with an urgent Royal Command: His Royal Highness was consumed with impatient to learn how to open his tantalizing gift!

The list of Dunhill's patrons reads like a who's who, not just of English aristocracy but all the royalty of Europe as well as the shakers, movers and entertainers of the world. Winston Churchill made some of his most vital decisions while smoking Dunhill cigars, as did John F. Kennedy. Over the years clients browsing in the House of Dunhill rubbed shoulders with Anna Pavlova, Somerset Maugham, Rudolph Valentino, the Marx Brothers and Frank Sinatra. In 1963 the firm received the ultimate stamp of approval in the Royal Appointment to the Queen.

Alfred Dunhill's inventive smoking accessories have become collectors' items. His most spectacular success was the "Unique" lighter in 1924. For the first time smokers had a reliable lighter whose horizontal flywheel mechanism made it spark every time, and which they could hold and operate in one hand. Luxury variants of the Unique lighter followed, one with a built-in watch. A sports model for open cars featured a windscreen around the flame. In 1930 a "Vanity" version for women incorporated a powder puff and lipstick. Always ahead of competitors, Dunhill went on to produce giant

empire built on slavery in its early years, Dunhill today plays down its association with tobacco. "We're a bit embarrassed about it," said Mr Dunhill, thoughtfully puffing on his pipe.

Behind the counter in the Dunhill showroom, an assistant weighs out 50 grams of rich Atlanta tobacco for a bowler-hatted customer. Its deliciously intense aroma makes my head swim. The wall is decorated with pipes, some as glossy as newly opened chestnuts, others knobbed with a shell finish. Each has the distinctive Dunhill mark, a white dot.

"Our pipes go through 90 processes before they are ready, and the mouthpiece is hand cut, not moulded," Richard Dunhill explains. "Our expert at the factory rejects 98% of all the pipes during some stage of their production because he finds cracks, splits or holes. It's true that you can buy a pipe for 25 pounds while ours cost from 70 pounds to one hundred and fifty pounds, but ours are perfect."

During the last ten years, under Richard Dunhill's direction, men's clothing has been introduced. "It has required a dramatic change of thinking for us to produce two new collections each year after producing merchandise that never dated," he said. Apart from their classic blazers and flannel slacks this summer customers will also be able to select clothes from Dunhill's current Varsity Collection, with its nostalgic evocation of languid college days.

"Our biggest change recently has been the introduction of strongly colour coordinated clothes," said Mr Dunhill. The Varsity collection even Co-ordinates belt and umbrellas! Richard Dunhill is amazed by the success of their menswear division. "It has certainly been one of our greatest triumphs, that after only 12 years we have become the largest supplier of luxury ties in the world!"

The success of Dunhill's enterprise in Japan is probably unequalled by any other British company. Dunhill has 30 boutiques in Japanese department stores, each one an oasis of understated indulgence. Japan now accounts for one third of all its business.

Perhaps the biggest surprise in recent years has been Dunhill's acquisition of the French women's fashion and fragrance house, Chloe, which will continue under its own brand name. Dunhill have negotiated ready-to-wear licences for Chloe and Miss Chloe in Japan.

"Our basic strategy will continue to be the creation of a major international enterprise by acquisition and by internal growth," said Mr. Dunhill. "We expand further into fashion and custom-made tailoring, footwear, and we'll acquire more brand names. We have 700 million pounds available in cash. Who knows - we may get into sports services, perhaps even entertainment. The sky's the limit."

The day after our interview, Richard Dunhill was due to fly to Jamaica to select three gold teams to challenge the Australian champions later this year at St Andrews. With its prize of money of \$US1.2 million, the Dunhill Cup is the richest golf tournament in the world. "One of our biggest challenges is to communicate our new diversified image to the public and sponsoring the Dunhill Cup is one means of doing that."

Richard was enthusiastic about his imminent visit to mainland China which is to compete in an international gold tournament for the first time since the Revolution outlawed golf as a capitalist pursuit. "As a member of some of the world's leading golf clubs, I should play much better than I do," he shakes his head gloomily. "Perhaps when I retire..." In the meantime, he relaxes landscaping his large Buckinghamshire garden and building models with antique meccano sets which he avidly collects.

Golf tournaments, women's fashions, boutiques in Australia and Japan ... Richard Dunhill leans forward smiling. 'My grandfather would probably have a seizure if he saw what we are doing. But I really think he'd be incredibly impressed."

table lighters and pocket lighters, perfecting the mechanism with the roller technique and improving the fuel by introducing butane gas.

The man who buys a Dunhill product is also purchasing a distinctive image: gold standard masculinity coupled with an understated English elegance. Alfred Dunhill laid the foundation of this gentlemanly pipedream in the gracious days of Empire; today, as England hurtles towards Great Europe, his descendants continue to pander to the same nostalgic ideals with equal success. The Dunhill label seeks to confer membership to an exclusive club of English gentlemen who value quality above flair, tradition above trend. Unlike self-indulgent French *bon vivants*, or lusty Italians who pursue la Dolce Vita, the quintessential Dunhill gentleman reveres restraint, moderation, classical styles and subtle colours.

As I entered the Alfred Dunhill shop in London's West End, the liveried doorman ushered me into the elegant showroom. Points of light from the chandeliers danced on the intricately patterned parquet floor, on which lay an antique Persian rug. Tastefully arranged against wood-panelled walls and in glass-topped display cases was a selection of Dunhill merchandise: wallets, lighters, belts, ties, umbrellas, pyjamas, shirts, suits, raincoats, travelling bags, sunglasses, toiletries, watches, pens and cufflinks.

I marvelled at an apparently seamless black travelling bag of butter-soft lambskin that almost melted at the touch. So cunningly designed, it secreted an attached case in a centre opening, so beautifully made that I could hardly believe a human hand had fashioned it. In a glass display case lay a seductive array of Masterpiece Montblanc fountain pens, elegant black bodies tapering into 14 carat gold nibs. The number engraved on the nib, 4810, is the height of the Mont Blanc in metres! At another counter the Elite watches entranced me with their thin casing and openwork link bracelet.

I picked up a slender lighter with a raised barley design in cool, satin-smooth gold plate which felt so good that I almost wished I smoked. It is interesting that the latest Dunhill lighter is a copy of Alfred's original Unique, except that this model is gas and flint-operated, and is also produced in 9ct solid gold.

A carousel of silk ties lay fanned out on a circular table. I asked the assistant why anyone should pay over \$100 for a tie. As he patiently pointed out their unique features, I realized that these were not merely ties, they were marvels of sartorial engineering! First of all, they were made of the finest Italian silk, entirely hand-stitched and hand-pressed. Then there was the subtle pattern, exclusive to Dunhill, with the discreet encircled "d" at the base. This was no mass-produced item. Moreover, these ties were padded to ensure that they held their shape. The piece de resistance was a stiff plastic thread behind a narrow tab which when pulled down removed any creases.

Raising the question of price with the Chairman of Dunhill is a little like discussing the issue of privilege with the Queen: you know ahead what the reply will be, but you are not prepared to press your argument. "We place quality above everything, regardless of the time and effort involved, and many people are prepared to pay for our quality. We select the finest fabrics, and have our merchandise made by consummate craftsmen wherever we find them. So our lambswool is made in Scotland, pens in Germany, watches in Switzerland, fashions in Italy, and pipes here in England."

Alfred Dunhill once said that no gentleman is truly well-dressed without the subtle note of a fine masculine fragrance. He introduced fragrance into the range in 1936, but this aspect of Dunhill's merchandise was not successful until the new Editions fragrance and grooming range was launched in 1985.

Its distinctive sensual perfume of wild herbs and exotic spices results from a subtle blending of Italian lemon, petitgrain and Alpine lavender oils, with clary sage, basil and Asian galbanum, cedar and sandalwood.

At the far end of the shop are the smokers' requisites, their unobtrusive location an indication of this division's reduced role among Dunhill's enterprises. Twelve years ago, smokers' products accounted for almost 100% of the firm's sales: today they represent only 8%.

In 1981, Dunhill sold its tobacco business to Rothman's International, who continue to produce Dunhill brand cigarettes under licence. Rothman's is the major shareholder in Dunhill with a 50.6% holding. Like an