RJR
SECRET
PLANNING ASSUMPTIONS AND FORECAST FOR THE PERIOD 1977-1986+
FOR
R. J. REYNOLDS TOBACCO COMPANY

I. THE GENERAL BUSINESS CLIMATE.......................................................... 1
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY....... 3
III. THE RESEARCH DEPARTMENT
   A. GENERAL.................................................................................................. 3
   B. SMOKING AND HEALTH.......................................................................... 5
   C. REGULATION, TAXATION, ETC............................................................... 9
   D. RAW MATERIALS AND PROCESSES....................................................... 10
   E. PRODUCTS............................................................................................... 14
   F. MISCELLANEOUS................................................................................... 18

Research Department
April 15, 1976
THE GENERAL BUSINESS CLIMATE

1. No sudden change will occur in the “system” or business environment in which we operate, i.e., there will be no catastrophic pestilence, disease, world war, revolution, major depression, natural disaster, or the like. There is a possibility of renewed warfare in the Mid-East probably again accompanied by a petroleum crisis.

2. As the present “under 35” age group becomes that dominant power group in our society, the new personal and political values of that group will exert a more predictable influence for change upon most aspects of government, society, business, morality and foreign policy. The changes which occur are not expected to be favorable to business. However, this large consumer group will have needs to be satisfied in terms of tobacco products. This offers us a large market if we are sufficiently astute to identify those needs and design and sell products to meet them.

3. World leaders of morality, such as the Pope, will exert great influence to modify the personal mores, and consequently the civil and political values, of the present “under thirty” age group. There will be a strong swing toward wholesomeness, integrity and decency which will affect the consumer outlook and product expectations of this group. Price, quality and durability will become more important than fad, flamboyant fashion or sex appeal.

4. The “consumerism” movement will remain strong, and the ability of consumers to objectively judge the quality and utility of products may increase. Product labeling will become more definitive in terms of composition, date, hazards, and the like.

5. Present socio-legal-governmental trends will continue. Concern for “social justice”, environment, energy, population control, and product safety will remain high. Governmental regulation of almost all aspects of our society will increase.

6. The energy shortage and to a lesser extent other material shortages over the next decade will cause a change in world economy and politics a change in national priorities and life style, and increased cost and difficulty in doing business. Concern for environment will remain high among certain groups; and although energy needs will finally outweigh environment considerations, the environmental groups will continue to fight and delay. These influences will continue beyond the projection period and will intensify as energy needs and environment consideration exert a greater effect on the average person.

7. The U. S. standard of living will not increase at the rate of the last decade. The amount of discretionary income will decrease. The main squeeze will be on the middle economic class.
I. THE GENERAL BUSINESS CLIMATE (cont’d)

8. The health consciousness and technical understanding of the population, as applied to products, will increase.

9. Price-wage-profit controls will remain a possibility for at least several more years.

10. Coping with the business cycle will remain difficult. The profit squeeze will remain a major problem unless periodic “pass-through” price increases are competitively feasible and allowable.

11. Due in large part to political tampering with an economy already under real stress, it was long thought that the economy would cycle between high unemployment and high inflation at about 2 to 3-year intervals. However, it is apparent from recent experience that this idea should be abandoned. For several years unemployment and inflation have been cycling together. As a 10-year average, inflation will probably run at about 8% and unemployment at about 8%; i.e., politicians will continue, in election years, to place more emphasis upon full employment than upon price stability. Also for complex reasons, the government is committed to a continued policy of inflation.

12. A key factor in the control of the economy’s vigor is the decreasing birth rate. Even at current levels, every facet of the juvenile market may expect to be depressed. And only a few years beyond the projection period looms a markedly reduced generation of young adults who will need consumer goods. This may provide a built-in cooling of the economy, leading toward less inflation and specialized areas of unemployment.

13. More and more evidence of financial mishandling by cities, states and national governments will leak through to the public in the immediate future. The root causes, such an overextending in welfare programs, abuse of expenditures in such programs, corruption, waste, unwise and expensive experimentation with educational programs, and unnecessary services will become more evident to the public and will elicit strong response and possibly backlash. Considerable instability in municipal, state and federal spending policies and programs will result, with attendant uncertainties in taxation outlook.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

III. THE RESEARCH DEPARTMENT

The format for the discussion of the two sections (a) The Tobacco Industry and R. J. Reynolds Tobacco Company and (b) The Research Department has been presented as two separate sections in past issues of Planning Assumptions and Forecasts. This format has been changed for the present memorandum.

The planning assumptions and forecast for the Tobacco Industry – RJR for 1977-1986 are paralleled, where applicable, on the same page with comments on the possible response of the Research Department to the assumptions affecting the Industry and RJR. While this parallel format leads to some repetition in the text, hopefully it will provide a better understanding particularly to personnel in other departments of the Research Department’s involvement in the situations forecast for the 1977-1986+ period.

A. General

1. As the technical complexity of the tobacco business and the sophistication of its products increase, there will be increased needs and opportunities for research, particularly in the area of basic research. Results and procedures developed in basic research from past years will be utilized at an increased level.

Projects aimed at effecting operating economics will continue to receive major short- and long-term emphasis.

The need for research services, e.g., new analytical methods development, analyses, literature, ecology, smoking health related, and the like, will increase as the size, product lines, and scientific complexity of the tobacco business increase.

Closer working relationships with Manufacturing, Marketing, Tobacco Development, Legal, and other Company Departments will provide improved input pertinent to research programs.

1. The profit squeeze, the increasing cost of domestic and Oriental leaf tobacco, increased taxation, and the smoking health controversy will remain the major problems of the industry.
II. THE TOBACCO INDUSTRY AND R. J.
REYNOLDS TOBACCO COMPANY

A.

2. RJR-T has a great opportunity to capitalize on the growing foreign market, particularly the market in “emerging nations”. Increasing trade barriers and international monetary difficulties, increased regulation and taxation of tobacco products in foreign countries, and increased requirements that much of the tobacco used be “home grown” will add to the difficulty in penetrating these markets.

3. Over the long run the influence and political power of the Industry will decrease.

4. Total cigarette consumption in the U.S.A. as well as per capita cigarette consumption will be affected principally by the following demand factors (listed in order of estimated decreasing importance):

   a. Total U. S. population (18 and over)
   b. Age distribution within this population
   c. Taxation and other cigarette price factors
   d. The impact of the health controversy
   e. The per capita disposable income.

   For the projection period, per capita consumption will stay level, at best, and may tend to decrease as the percentage of new smokers decreases. It can be assumed that the other factors will have their “logical” impacts. Thus, the long-range unit sales will increase no more than 1 to 2% per year. For RJR-T, the unit sales increase will exceed that of the Industry at least in the first few years of the projection period.

5. The public concern over energy, inflation, political integrity, unemployment, etc. will create a period of national psychological stress, during which smoking-health concerns may be overshadowed.

6. The declining birthrate, if continued, indicates decreased cigarette sales in 15 to 20 years, due to the reduced consumption by the then large over-50 age group.

III. THE RESEARCH DEPARTMENT

General

2. Research Department will be involved with RJR-I on request (probably through ***)
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

B. Smoking and Health

1. The scientific controversy over the alleged effects of smoking on the health of the smoker will stabilize or abate, provided Industry, Government and other groups begin to reach a truly constructive, collaborative consensus and joint effort; otherwise it may intensify. A hard-core anti-tobacco group will always remain and will be joined by anti-big business groups in attacks on the tobacco industry.

2. The negative effect of the smoking-health controversy on consumer behavior is approaching a maximum; i.e., no new adverse data would be expected to materially change the attitude of the public toward smoking and health.

3. The anti-tobacco lobby, in addition to harping on the alleged association of cigarette smoke with cancer and other diseases, will aim a major long-range thrust at smoking in an attempt to stigmatize it as a socially objectionable and lower class habit. One of the major tools in this endeavor will be the campaign against the effects of environmental smoke which is labeled “passive smoking”. “Passive smoking” is defined as the exposure to tobacco smoke by nonsmokers. Three related but distinct areas need be considered:

   a. Legislative activities of anti-tobacco forces aimed at prohibiting or restricting smoking in public places such as restaurants, semi-public places such as the working place in general, including offices, factories, etc. A concerted effort to counteract these activities is being made by the Tobacco Institute; no RJR initiative is needed.

   b. The long-range, more important, second area is the unequivocal declaration to label smoking an objectionable habit. Very little is being done to contest this industry-wide, and an RJR-led effort could be highly important.

III. THE RESEARCH DEPARTMENT

Smoking and Health

1. Smoking-health research done on a collaborative basis by Company, industry and private or academic groups will require the Research Department to provide inputs such as consultation, analyses, and possibly various detailed laboratory studies.

   Research related to the smoking health controversy will continue to receive Major short- and long-term emphasis.

2. Awareness will be maintained by Research Department.

3. Techniques to determine composition and quality of sidestream smoke to which a nonsmoker is exposed will be developed.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

III. THE RESEARCH DEPARTMENT

B. Smoking and Health

c. The third effort of the anti-tobacco lobby could be labeled indirect prohibition. This refers to the effort of the anti-tobacco lobby to enforce over a period of time a steady lowering of tar and nicotine levels with the purpose that lowering tar and nicotine, especially the latter, will eventually lead current smokers to stop altogether and the “new smoker” not to start. Very little is being done on an Industry-wide basis to counteract this, and a RJR initiative seems warranted. It is important that efforts on this point be made, not only within the United States, but also overseas.

4. New data favorable to smoking, if generally accepted by the public, could significantly improve the position of the Industry. If RJR-T were to become the Industry spokesman in matters related to smoking and health and take the offensive in presenting information favorable to the Industry (and RJR-T), the impact of the oft-repeated arguments of the anti-tobacco forces will be offset.

5. Nicotine, ultimately, may return to its position in the 1964 Surgeon General’s report; i.e., not good for a few persons with specific health problems, but in general not a significant health hazard.

6. Currently cigarettes having no more than 12 mg of “tar” and about 0.8 mg of nicotine, with accompanying reduction in carbon monoxide, etc., would appear to be considered acceptably “safe” to the more moderate anti-tobacco group. With time, these maximum acceptable values would be expected to drop to lower levels; e.g., 5 mg of “tar”, 0.5 mg of nicotine.

7. Current simplistic emphasis on direct reduction of smoke “tar” and nicotine will remain high but may be replaced gradually by emphasis on selective reduction of specific smoke components alleged to be harmful, with shift from “prohibition-total cessation” to development of an allegedly “safer” cigarette. This is based on the growing acknowledgment by anti-tobacco groups that large numbers

4. Awareness will be maintained by Research Department.

5. Awareness will be maintained by Research Department.

6. The Research Department will be prepared to assess the composition of the smoke from such cigarettes in terms of flavorant delivery, physiological impact and satisfaction, and the like. Much effort will be directed toward the low “tar” concept.

7. Anticipation of the nature of the specific selective smoke components alleged to be harmful will permit development of appropriate analytical procedures, methods to control levels objective assessment of alleged harmful effects, etc.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

of people will continue to smoke and that the realistic goal should be to minimize the alleged health hazards claimed to be associated with smoking.

8. Increased research effort under the National Cancer plan will not furnish substantial amounts of immediately useful new information bearing on the smoking-health controversy, but, by the end of the decade, government research may point to moves which it feels the Industry can make toward allegedly “safer” cigarettes, with at least indirect government endorsement.

9. Substantial progress will result toward what is alleged to be a “safer” cigarette from use of a combination of many techniques, e.g., use of homogenized tobacco, porous paper, improved air dilution and filtration, alteration of the burning process, pre-treatment of tobacco, additives, alteration of tobacco varieties, use of synthetic or extended tobacco, and the like, rather than from a single effect.

10. Some presently-used flavorants, additives, and colorants may come under attack because they may be claimed to add to the alleged health hazards of smoking. Detailed information on the properties of flavorants and additives with long historical use may be required by Federal agencies.

11. Despite improvement in methods for prediction of susceptibility to, detection, prevention, treatment or cure of some of the diseases alleged to be associated with tobacco usage, and improvement in the alleged safety of tobacco products, the allegations regarding the “risk” of smoking will not be substantially altered in the next five years.

12. Mouse skin painting will remain the standard but imperfect test procedure for alleged carcinogenicity of smoke for most of the decade, but progress will be made toward development of new more rapid and meaningful, and less expensive test procedures. Inhalation testing will become increasingly important as the method is improved and becomes more widely accepted.

III. THE RESEARCH DEPARTMENT

B. Smoking and Health

8. Consultation of Research personnel with National Cancer Institute personnel will be directed toward ensuring that government personnel recognize and acknowledge the Company’s (and Industry’s) contributions to the studies in progress or planned.

9. Studies on the effect of various combinations of these techniques on smoke quality and properties will be continued or implemented to ensure that progress indeed in the direction of an allegedly “safer” cigarette.

10. In anticipation of such attacks, the Research Department will, as time and personnel availability permit, cataloging the nature and chemical and physical properties of the major and minor components of all flavorants and additives.

11. Because both the “tar” yield and the concentrations of allegedly harmful components in the “tar” will probably continue to decrease during the projection period, the “risk” from smoking should be reassessed in terms of dose response.

12. Awareness of alternate short-term, less expensive test procedures for alleged carcinogenicity of smoke will be maintained.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

III. THE RESEARCH DEPARTMENT

B. Smoking and Health

13. The component or components of tobacco smoke deemed responsible for alleged health hazards associated with smoking will be more clearly defined during the decade. Appropriate biological test procedures for these components will be developed.

13. The Research Department will attempt to anticipate the nature of the component or components. Appropriate analyses of these components will be developed, a methods to reduce the levels at such components will be investigated. The Claims that such components are responsible for health hazards will be scrutinized as to their validity.

14. Carbon monoxide will receive increasingly more attention as a major alleged smoke-health hazard, particularly when FTC begins to publish carbon monoxide values for brands in about two years. Before the end of the projection period, nitric oxide will also receive increased attention.

14. Continued emphasis on carbon monoxide by anti-tobacco forces will require continued research on methods for controlling levels of carbon monoxide in smoke.

15. Studies may identify certain types of individuals highly susceptible to diseases allegedly associated with smoking. This may allow others to smoke with less health anxiety.

15. Studies may identify certain types of individuals highly susceptible to diseases allegedly associated with smoking. This may allow others to smoke with less health anxiety.

16. Diseases or disabilities not presently alleged to be associated with smoking will, in the projection period, be alleged to be so associated.

16. The validity of such allegations will objectively scrutinized and counter-arguments, if available, will be prepared.

17. Progress will be made in developing techniques to make cessation of smoking easier.

17. Awareness will be maintained.

18. Anti-tobacco programs aimed at the public, and particularly at children, will continue, and with experience and time may become more effective.

18. Awareness will be maintained.

19. Industry-sponsored research related to smoking and health is likely to be expanded, at least for the next several years.

19. Research services in the form of analytical methods, consultation, *** preparation, and the like will be provided as required.

20. The search for quality cigarette free of alleged health hazards will continue, but it is unlikely that smoking critics will be totally satisfied with any product produced. Such a product would, of course, be a boon to the Industry.

20. All necessary research services will be supplied to Tobacco Development, Manufacturing, etc. in support of the search.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

III. THE RESEARCH DEPARTMENT

C. Regulation, Taxation, Etc.

1. Research services to provide information to combat such regulation will be provided on request.

2. Research will provide technology to enable such reductions to be accomplished.

1. Composition, manufacture, advertising, sales and use of tobacco products will come under increasing governmental regulation.

2. The Federal government may set maximum permissible levels for “tar”, nicotine, carbon monoxide, and other components, probably via a “voluntary” agreement with the Industry. Failure to comply may result in increased taxation or the necessity to immediately reduce “tar” levels of major brands while maintaining quality. The probability and the date of such government action may be advanced by the introduction of low “tar” products such as the Carlton and the NOW which demonstrate the feasibility of the low “tar” cigarette.

3. Taxation of tobacco products will increase, becoming more punitive and ultimately more specifically related to the alleged health hazard of each product.

4. Awareness will be maintained.

3. Taxation of tobacco products will increase, becoming more punitive and ultimately more specifically related to the alleged health hazard of each product.

4. Additives or adulterants and colorants of tobacco products may be regulated.

4. Awareness will be maintained.

5. The FTC may extend its smoke analyses to include components in addition to “tar” and nicotine. Carbon monoxide and other gas-phase components are the next likely group. Analyses for these other components may ultimately be required in advertising. This extension of analyses may require simultaneous determinations of various entities; e.g., “tar”, nicotine, carbon monoxide, and nitric oxide on the same sample.

5. Anticipation of analyses required by the FTC will be a continuous Research Department function.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

C.

6. Patent protection on “new” tobacco technology, particularly in the areas of flavorants, additives and synthetic tobaccos, will be increasingly difficult to obtain.

7. Lawsuits by plaintiffs allegedly harmed by use of tobacco products will dwindle with time.

D.

1. On both a domestic and world-wide basis, unit sales of cigarettes will continue to increase. Leaf prices will increase by an amount in excess of the inflation rate.

2. The projected leaf price squeeze will require acceleration of maximization of yield of cigarettes per unit weight of tobacco (e.g., full usage of stems, scrap and dust; maximum use of G13 tobacco; shrinkage of tobacco rod dimensions; relaxation of firmness standards; use of whole plant, stalk and all; and the like).

3. Growing and processing of tobacco on the farm will become more technically sophisticated, e.g., trends to improve varieties and cultural practices, mechanized harvesting, bulk curing, and the like will accelerate. This will change the cost, quality, and manufacturing characteristics of our raw material.

As growing and processing of tobacco do become technologically more sophisticated, both quality and cost will approach realistically acceptable values, the dominant fact being, as with all agricultural products, the law of supply and demand will assert itself and eventually sufficient tobacco of satisfactory quality and reasonable price will be available.

III. THE RESEARCH DEPARTMENT

Regulation, Taxation, Etc.

6. With a concerted effort involving preparation of appropriate arguments to rebut the patent examiner, patents will be obtainable where such effort is deemed advisable.

7. The Research Department will supply all services necessary to aid in defense against such lawsuits.

Raw Materials and Processes

2. The Research Department will provide all necessary information to the effect of smoke composition and quality of the techniques described.

3. Awareness will be maintained.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

III. THE RESEARCH DEPARTMENT

D. Raw Materials and Processes

4. Government support of domestic tobacco production eventually will be dropped and Federal support of agricultural research will be curtailed. The entire system for production and marketing of leaf will change, and the tobacco material produced will change in form and have substantially lower smoking and physical quality. The trend will be toward mechanized production of a chopped, whole-plant, bulk-dried tobacco material derived from high density plantings on relatively few very large farm complexes, domestic and/or foreign-on a contract basis, perhaps in new geographic regions, possibly on a two-crop per year basis.

5. Substantial changes in the physical and smoking qualities of our raw material mix will require substantial changes in our processing and manufacturing techniques. As raw material quality declines severely, our present processes, aimed at preserving and enhancing the qualities of natural leaf, will give way to processing where the over-riding aim will be to produce the most product from the least amount of raw material, with desirable smoking qualities being imparted during processing via flavorants, additives, substantial diluents, and chemical treatments.

4. Awareness will be maintained.

5. A competitor or other agency will make an advance in technology which will require rapid technological response from the Research Department at the expense of on-going projects.

Substantial changes in processing technology, raw materials, and product composition and configuration, leading to substantial alteration of smoke composition, will necessitate increased effort on biological evaluation of new or altered products. Under present Company policy, this work will be contracted to independent laboratories with arrangements, experimental design monitoring, and interpretation of the results the primary responsibility of the Research Department. Or, it may be possible in terms of cost and credibility to arrange for some of this work to be done by the National Cancer Institute.

6. This change in processing philosophy may ultimately give rise to much simpler, less expensive manufacturing systems for converting raw material to finished cigarette. Design of such systems will also be directed toward reduced energy consumption.

6. Efforts along these lines will continue at an increased level.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

D. Raw Materials and Processes

7. If homogenized tobaccos are produced and used, the processing involved will present a unique opportunity to manipulate and control the composition of the product quality and effect overall processing economies.

8. Imported, non-Oriental tobaccos will find growing use of domestic products as long as they are substantially less expensive than domestic tobaccos and can be upgraded by addition of flavors and other additives. The economics of many countries which are sources of off-shore tobaccos will grow at a faster rate than that of the U.S.A.; thus, some off-shore tobaccos may rapidly be priced out of our reach.

9. The use of Turkish tobacco will decrease as the tobacco becomes less available, more expensive, and of lower quality.

10. One or more “synthetic” tobaccos or tobacco extenders may find appreciable use in tobacco blends. By the end of the projection period, one or more synthetic tobaccos or tobacco extenders may be developed to the point where they will provide reasonably acceptable cigarettes alone, not admixed with tobacco. Synthetic tobaccos are being promoted as offering alleged-health advantages to the smoker and probably will not in the near future be less expensive to use than natural tobaccos. Natural extenders which the Government or others suggest will reduce allegedly harmful effects of tobacco may come into use. They may also offset leaf shortages and improve profitability; presently, however, all non-tobacco materials are under a “cloud”.

III. THE RESEARCH DEPARTMENT

7. Past studies indicated that homogenization of the strip portion appeal to appreciably affect smoke quality adversely. Hence, further sophisticated work on homogenization of leaf are clearly indicated.

8. Imported, non-Oriental tobaccos will find growing use of domestic products as long as they are substantially less expensive than domestic tobaccos and can be upgraded by addition of flavors and other additives. The economics of many countries which are sources of off-shore tobaccos will grow at a faster rate than that of the U.S.A.; thus, some off-shore tobaccos may rapidly be priced out of our reach.

9. The use of Turkish tobacco will decrease as the tobacco becomes less available, more expensive, and of lower quality.

10. One or more “synthetic” tobaccos or tobacco extenders may find appreciable use in tobacco blends. By the end of the projection period, one or more synthetic tobaccos or tobacco extenders may be developed to the point where they will provide reasonably acceptable cigarettes alone, not admixed with tobacco. Synthetic tobaccos are being promoted as offering alleged-health advantages to the smoker and probably will not in the near future be less expensive to use than natural tobaccos. Natural extenders which the Government or others suggest will reduce allegedly harmful effects of tobacco may come into use. They may also offset leaf shortages and improve profitability; presently, however, all non-tobacco materials are under a “cloud”.

10. By 1978, RJR-T will produce and use proprietary Turkish flavorants in domestic products. In addition to the proprietary flavorants first isolated a decade ago in the Research Department work in progress will yield new flavorants.

9. By 1978, RJR-T will produce and use proprietary Turkish flavorants in domestic products. In addition to the proprietary flavorants first isolated a decade ago in the Research Department work in progress will yield new flavorants.

10. Awareness of competitors’ “synthetics” will be maintained. In specific instances, examination of smoke or “strangers” may be instituted.

Our J10 product, when developed, may offer a very attractive alternative to use of synthetic tobaccos or other extenders, in terms of both economies and alleged “safety”. Appropriate studies on the properties of J10 and J10-tobacco smoke will be completed in late 1977.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

11. There will be increasing emphasis on chemical alteration of smoking quality as “smoke numbers” continue to trend downward and as off-shore, processed, homogenized or synthetic tobaccos are increasingly used, along with full return of stems.

12. In terms of economy, a cigarette made with 100% expanded tobacco and stems is a highly desirable objective.

13. For environmental reasons, manufacture and use of Freon 11 and related halogen compounds may be severely controlled or eliminated. This will require us to develop alternates to the present G13 process.

14. Other companies, domestic and foreign, will continue to find satisfactory ways to expand tobacco which are free of our patents, hence, our return from royalty payments may diminish in time.

15. Licorice, natural menthol, cocoa, sugar and other natural additives for tobacco will be in short supply and/or very expensive by the end of the projection period.

16. In the interests of efficiency, the Industry will move toward automation — computerization of inventory control, blending and processing, quality control, etc.

III. THE RESEARCH DEPARTMENT

D. Raw Materials and Processes

11. Comparison and quantitation on smoke profiles will be improved to assess the effects of lower “smoke numbers” and/or inclusion of off-shore processed, homogenized or synthetic tobaccos.

12. Further research on smoke and physical qualities of cigarettes containing 100% expanded tobacco will be needed.

13. Awareness of all factors influencing the Freon 11 situation (ozone deplete theory, cardiovascular problems, etc.) will be maintained. Consultation with TPD, Arjay, etc. will continue.

14. Despite the low probability of success, work to develop new or alternate expansion processes will continue. Attempts will be made to protect the company by patenting all such alternatives.

15. Alternatives will be sought.

16. The Research Department is employing considerable automation and computerization in its operations. Data computerization will be extended. However, there are no obvious areas for major improvement in output per man by further automation.
E. Products

1. Work to improve smoke quality and innovations directed toward establishment of new brands will continue to receive major short- and long-term emphasis.

2. Work to improve smoke quality and innovations directed toward establishment of new brands will continue to receive major short- and long-term emphasis.

3. Work to improve smoke quality and innovations directed toward establishment of new brands will continue to receive major short- and long-term emphasis.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

4. Carbon filtered cigarettes will continue to decline in share of market because of inherent off-taste. Unfiltered cigarettes and the present 85-mm Normal Flavor Filter (NFF) cigarettes will decline in share of market.

5. By the end of the projection period, essentially all cigarettes sold will have either filters or mouthpieces.

6. Most brands, responding to pressures for lower numbers, will eventually use some form of air dilution.

7. Spin-offs from established brands will yield more than modest net brand gain, but wholly new brands, of good quality and image, have higher market potential.

8. With exception of the very low “tar” cigarettes (NOW), any fully successful new brands will have to deliver real satisfaction to the smoker and will have to be demonstrably different in composition and/or physical configuration from present products.

9. Increasing attention will be paid to identification, measurement and reduction of unpleasant “negative” factors in cigarette smoke, such as stemmy taste, “dry-mouth” irritancy, and the like. The most successful brands will increasingly become those which deliver nicotine satisfaction accompanied by the least amount of “negatives”. Negative, or unpleasant, flavor and “mouth-feel” are primary factors in customer selection of cigarettes, along with nicotine satisfaction.

10. There may be a limited market for a quality cigarette delivering essentially no nicotine.

III. THE RESEARCH DEPARTMENT

E. Products

4. The Research Department will attempt to anticipate brands.

5. New filter concepts will be explored.

6. Capability will be maintained, new concepts will be explored.

7. New cigarettes concepts will be sought.

8. In some instances, the Research Department may be the “court of last resort” in providing the necessary smoke data to indicate that a *** additive, colorant, etc. does not contribute “strangers” to the smoke.

9. Panel testing will remain an important measure of tobacco smoke quality; however, panel testing needs to be improved to become more “realistic”; And a more objective measurement, based on reproducible analytic data profiles, is needed and may soon be technically feasible.

10. A low-nicotine cigarette may be more acceptable in terms of smoke quality by inclusion of certain nicotine bases or precursors of these compounds plus other flavorants.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

III. THE RESEARCH DEPARTMENT

E. Products

11. One or more cigarette products with novel flavor may establish a new market category. This new flavor concept may include an all-burley or flue-cured cigarette.

12. A cigarette with “normal” smoke nicotine and significantly lowered “tar”, e.g., with unique “tar”/nicotine ratio of 10 or less, may achieve a significant place in the market.

13. A cigarette designed and labeled as being “noninhalable”, i.e., with alkaline, high nicotine smoke, may appeal to a limited market.

14. A cigarette (85 and/or 100 mm) at or just above the Carlton (“tar” 4 mg, nicotine 0.4 mg) with good smoking quality should offer excellent long-term growth potential for RJR-T. i.e., a cigarette at a 5- to 7-mg “tar”, 0.5-mg nicotine, and 5-mg or less carbon monoxide level.

15. There may be a place in the market for a product with the dimensions and convenience of a cigarette and the mouth-piece and smoking properties and “mouth-feel” of a pipe.

16. There should be high acceptance for a “good” cigarette leaving no unpleasant breath or aftertaste.

17. Innovations in packing, if economically feasible, offer promise as a sales tool.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

18. As raw material (tobacco and substitutes) qualities and manufacturing techniques change, changes in product configuration and qualities will occur. This may lead to a variety of new product configurations such as:

a. Cigarettes made from homogenized sheet tobacco (stem, stalk and all) plus substitutes-extenders and additives.

b. A cigarette rod made by extrusion of ground, puffed tobacco and extender, treated with appropriate additives, and encased in paper.

c. Cigarette-shaped aerosol “smoke” generator devices, where the aerosol is modified smoke condensate or a purely synthetic mixture of nicotine, flavor, moisture, etc.

d. Cigarettes made wholly from “synthetic tobaccos”, with appropriate additives.

e. Other “smoke generator” systems, not yet conceived, may appear.

f. Other nicotine delivery systems not involving combustion, e.g., in chewable, lozenge or beverage form, may appear. However, this type of product may come under FDA scrutiny.

g. Cigarettes with diameter equivalent to or less than the MORE may appear. Reduction of cigarette diameter has been claimed to reduce biological activity of smoke in mouse skin painting studies.

III. THE RESEARCH DEPARTMENT

E. Products

a. Present research work in the areas will continue into the projection period.

b. Present research work in this area will continue into the projection period.

c. Research will explore new concepts.

d. The smoke from such cigarettes, whether generated in-house or from Outside the Company will be examined for “strangers” if deemed advisable. Awareness will be maintained and periodic status reports will issue on “synthetics”.

e. Research will explore new concepts.

f. Research will explore new concepts.

g. Studies on influence of cigarette parameters on smoke yield composition and properties will continue into the projection period.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

19. With the projected deterioration of smoke quality, menthol (and perhaps other additives) will be increasingly used to provide “covering power”.

20. As less tobacco and more extender is used in cigarette or as novel smoke generator systems come into use, FTC “tar” and nicotine numbers will inevitably decrease with accompanying decrease in smoke quality. This implies an increasing need either for means to restore or maintain levels of nicotine, flavor, and the like or for methods to improve the conversion of tobacco components to smoke flavorants during the smoking process.

III. THE RESEARCH DEPARTMENT

E. Products

19. The contribution of additives other than menthol to smoke composition will be examined.

20. Research efforts will be directed towards exploration of the possibilities here. Current basic research may eventually provide answers to the more efficient conversion of tobacco to smoke during the combustion process.

Miscellaneous

1. The Research Department headcount should grow at a modest rate for the remainder of the projection period as the technical complexity of our business increases. Also, periodic infusions of “new blood” will be needed to provide for orderly succession and to provide fresh skills and view points. By 1985, over one third of the 1976 professional staff will either have retired or be within three years of retirement.

2. The present Research Building will be adequate for our space needs during the projection period. However, drastic remodeling of laboratory space to accommodate increased emphasis on sophisticated instrumentation will be required. Instrumental handling of laboratory work is rapidly replacing *** of the cumbersome classical procedure.

3. Major capital investments in new, improved and/or more sophisticated instruments or apparatus will be necessary as the scope and complexity of our research effort increases.
II. THE TOBACCO INDUSTRY AND R. J. REYNOLDS TOBACCO COMPANY

III. THE RESEARCH DEPARTMENT

F. Miscellaneous

4. The Research Department budget for 1977 will be similar to that for 1976, with adjustments for wage and inflationary increases.

5. Improvement in skills in managing research personnel for high productivity and creativity will continue to receive high priority.

6. Support from the Research Department for recent or future acquisitions will continue. Any requirement for substantial support on a continuous basis will require an increase in the technical staff.