



**PATWILLISMEDICS**



**BUSINESS PLAN FOR  
INTRAVENOUS FLUID PLANT**

## TOTAL SOLUTION FOR PHARMACEUTICAL PLANT



Air Conditioning Unit



Water Treatment



The Liquid Configuration System



HDL Blow-Fill-Seal Ampoule Leak Test Machine



Labeling Machine



Plastic Ampoule Sterilizing Cabinet



TMB-300B  
TMB-300B Full Automatic Transparency Three Dimensional Packaging Machine



ZH120 Cartoning Machine



Packing Palletizing

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## I. SUMMARY

1. The production of Intravenous Fluids (IV Fluids) in Nigeria is Currently at 5 percent with the remaining 95% imported to meet the daily needs of the country.
2. Based on our findings the pharmaceutical industry should by 2025, produce IV fluids up to 100 million units per year. Due to population growth, production program for PATWILLISMEDICS is to start in April 2022 and produce yearly 7,948,800 bags of IV fluids.
3. Taking into account the projected domestic demand by the year 2022, infrastructure facilities and skilled manpower that will be made available and the establishment of our plant for the production of 1,800 units 500 ml of IV fluids per hour is recommended. With the completion of the new project, the country will achieve near self-sufficiency in IV fluids.
4. An important feature of the proposed plant is the transfer of technology involving polypropylene containers and a continuous process with integrated blow-moulding and filling operation. Polypropylene containers have definite advantages over the glass containers presently used. Furthermore, polypropylene containers can be sterilized at higher temperatures than other plastics.
5. Equipment is also provided for blow-moulding containers at site and training will be provided on handling the production equipment. This will prevent the importation of empty containers.
6. The IV fluids equipment selection will be of international standard and with the requirements of Good Manufacturing Practices.
7. Training is an important feature of the proposed plants. Nigerian pharmacists and engineers will be trained abroad in production, quality control and maintenance.
8. Investment parameters have been worked out. The proposed plant will entail an investment of 4.5 billion naira.

## II. INTRODUCTION

Diarrhoeal diseases could cause severe dehydration, which is one of the primary causes of a high child mortality rate in Nigeria. Dehydration can be rectified through the administration of solutions correcting fluid and electrolyte deficits orally with rehydration salts (ORS) or parenterally with IV fluids.

IV fluids are commonly used for a number of clinical conditions. These include: -

- i. Correction of disturbance in electrolyte balance as well as body fluids (fluid replacement), for example, in acute cases of diarrhoea
- ii. The means of providing basic nutrition, for example, post-surgery condition
- iii. The basis for the practice of providing total parenteral nutrition (TPN) or parenteral hyper-alimentation and;
- iv. Can be used to administer other medications.

Using IV fluids to administer other medications provide convenience and reduce irritation for continuous therapy. IV fluid consist of sugar, amino acids or electrolytes materials which can easily be carried and assimilated by the circulatory system. They are packed in glass or plastic containers of 100-500 ml capacity.

It has been estimated that 40 percent of all drugs administered in hospitals are given in the form of injections and their use is increasing, part of this increase is due to the wider use of IV fluids.

In the light of above, it is obvious that both ORS and IV fluids are essential for reducing diarrhoeal and disease related mortality. Furthermore, IV fluids are indispensable for hospitals. Presently in Nigeria 95% IV fluids are imported, to reduce importation PATWILLISMEDICS have the capacity to produce about 8 million units made in Nigeria 500ml. 4 billion Naira sales is expected as turnover to justify the equipment required for production.

## III. ESTABLISHMENT OF A PLANT FOR THE PRODUCTION OF IV FLUIDS IN NIGERIA

PATWILLISMEDIC is determined to start production in June 2022 and the approach to be used to meet IV fluids demands in Nigeria is to involve highly skilled manpower. Essentially, a state-of-art production equipment with the capacity of producing about 8 million IV fluids 500ml units will be installed.

## A. **BASIS FOR SELECTION OF IV FLUIDS**

The anticipated consumption figures for IV fluids for the year 2022 and 2025 are given. The production level proposed in the case of each product is the anticipated shortfall between projection demand and local production after completion.

## B. **SELECTION OF CONTAINER**

They are different types of containers used for IV fluids including glass, P.V.C polyethylene (low density) and polypropylene. The selection of the container depends on many factors such as the conventional use of a particular type of container to which the medical profession and the public are accustomed, availability of container, availability of raw materials for the production of containers and facilities for their production, local cost, etc. P.V.C is transparent and the presence of foreign particles can be easily detected. However, there is a virtual monopoly over production of P.V.C sheets of pharmaceutical gradient and limited sources for the bags types and this increases the cost of the containers.

All plastic containers for IV fluids should be to the specification of the World Health Organization (WHO). The sterilization of the solutions has to be carried out at 115°C or for a longer time. The other plastic containers are of polyethylene and polypropylene. These are widely used in some of the European countries. Polypropylene has the advantage that the containers can be sterilized at higher temperature of 121°C or for a shorter time. The containers can be produced at site by blow-moulding and this saves cost on importing empty containers. Polypropylene is transparent and this is the advantage. Considering all the above factors, polypropylene has certain advantages and that is the reason why it has selected for the project.

## C. **TECHNOLOGY**

Technology is an important element in the production of IV fluids. In the proposed plant, technology based on the use of polypropylene containers will be introduced. A special feature is the technology for the production of empty containers at site. Another innovation in technology is the introduction of a continuous process, that is integrated operation involving blow-moulding and filling in the same machine. This will avoid handling of empty containers, separately storing, opening in clean area and filling.

The containers are produced in one section of the machine through blow-moulding and filled instantaneously in the other section of the machine without exposing the container outside environment. This reduces the risk of contamination. Furthermore the containers are blow-moulded at a temperature above 200°C, therefore they are sterile prior to filling. The integrated machine is rather sophisticated and our engineers will be trained in the operation and maintenance of this machine.

D. **SELECTION OF EQUIPMENT**

Equipment selection is based on the use of technology involving polypropylene containers and integrated blow-moulding and filling under aseptic conditions. Two door autoclaves are provided to ensure sterile handling. Equipment selection is based on standard Good manufacturing practice (GMP) which consistently produced and controlled according to quality standards practices adopted in developed countries.

E. **TRAINING**

Training assumes great importance while planning the establishment of a unit for the production of IV fluids. In view of this, training is an internal part of the IV fluids plant right from the design stage through installation and operation. Out of these, supervisory personnel in production, quality control, maintenance and blow-moulding technology will be trained abroad. The number of persons and the length of training will have to be decided after detailed assessment of local skills, therefore costs of training in Nigeria and abroad are not included.

F. **INVESTMENT PARAMETERS**

The project is estimated to cost 4.5 billion Naira out of which 60 percent is the cost of equipment and technical know-how and 40 percent is that of civil construction.



## **PRESENT PRODUCTION RANGE OF INTRAVENOUS FLUIDS**

Glucose, Isotoni	5%	500 ml
Glucose, Hypertonic	10%	500 ml
Glucose, Hypertonic	15%	500 ml
Sodium Hicarbonat	1.4%	500 ml
Levulose, Isotonic	4,82%	500 ml
Mannitol	10%	500 ml

## **IV Fluid Solutions**

Dialysis Fluid		1000ml
Sodium acetate	166 g/1	500ml
NaCl	204 g/1	500ml
KCl	3 g/1	500ml
CaCl <sub>2</sub>	7 g/1	500ml
MgCl <sub>2</sub>	5 g/1	500ml
Sodium bicarbonate	1.4%	500ml

## **LIST OF EQUIPMENT FOR INTRAVENOUS FLUIDS PRODUCTION**

<b><u>S/N</u></b>	<b><u>ITEM</u></b>	<b><u>CAPACITY</u></b>	<b><u>NO.</u></b>
1.	Distillatory	800 L/hr	1
2.	Tanks with agitation	400 L	2
3.	Washing machine, PROT	30 – 35.000 flasks per 8 hours	1
4.	Filling machine, PKB	20.000 flasks per 8 hours	1
5.	Closing machine	25.000 flasks per 8 hours	1
6.	Capsulating machine	25 – 30.000 flasks per 8 hours	1
7.	Autoclaves	800 flasks each	5

## PROJECTION OF IV FLUIDS TO BE MANUFACTURED

	Unit Volume	Proportion of Consumption	Projection of Requirement in million units	
			2022	2025
Glucose, Isotonic,5%	500 ml	1.000.000	3,5	8,0
Glucose, hypertonic,10%	500 ml	50.000	0,2	0,4
Glucose, hypertonic,15%	500 ml	50.000	0,2	0,4
Na bicarbonate, 1.4%	500 ml	16.000	0,06	0,1
Na bicarbonate,1.4%	250 ml	50.000	0,2	0,4
Levulose, isotonic,4.82%	500 ml	30.000	0,14	0,3
Mannitol, 10%	500 ml	7.000		
Mannitol, 20%	250 ml	1.000		
Peritoneal Solution for Haemodialysis	500 ml	200.000	0,7	1,5
NaCl, isotonic	500 ml	500.000	2,0	4,0
NaCl, isotonic	250 ml	80.000	0,3	0,7
NaCl, hypertonic	250 ml	70.000	0,3	0,6
		<b>Total</b>	<b>7,6</b>	<b>16,4</b>

## PROPOSED LEVEL OF PRODUCTION IN 2022

<b>ITEMS</b>	<b>Quantity</b>
Glucose, Isotonic, 5%	1,800,000
Glucose, hypertonic, 10%	105,000
Glucose, hypertonic, 15%	105,000
Na bicarbonate, 1.4%	140,000
Levulose, isotonic, 4.82%	75,000
Peritoneal Solution for Haemodialysis	370,000
NaCl, isotonic	1,255,000
NaCl, hypertonic	150,000
	<hr/>
	4,000,000

### Basis of calculation

- Yearly production : 7,948,800 bags of 500ml
- Yearly working days : 305 days
- Number of shifts per day : 2 shifts =28,800 Bags
- Working hours per shift : 8 hours
- Daily production : 16,000 Bags of 500ml

## CONTAINERS FOR INFUSION

COUNTRY	PVC	POLYETHYLENE/ POLYPROPYLENE	BAGS
U.S.A and Canada	60%	20%	20%
U.K	85	10	5
W.G	0	60	40
Switzerland	18	75	7
Italy			100
Syria	100		
Jordan	100		
Lebanon	80	10	10
Saudi Arabia	20		80
Kuwait	100		
UAE	80	20	
Yemen	100		
Iran	50	50	
Iraq	20		80
Pakistan	95	5	
Afghanistan	60		40
Bangladesh	80	20	
Thailand	15	25	60
Japan	5		95

## PROPOSED LIST OF EQUIPMENT

S/N	EQUIPMENT	QUANTITY
1.	Thermocompression water distillation unit, output 800 L/h, water-still made out of stainless steel AISI 316, compressor made out of stainless steel, machine completely protected with metallic panels. Heating system by steam and or electricity. Complete with built-in safety device, resistivity cell for automatic control of water quality, automatic signal of failures and electronic switch for automatic running.	1
2.	Water softening columns for alternative operation provided with full load of softening resin. Max output 9 m <sup>3</sup> /h.	2
3.	Double column deionizer plant – mixed bed type provided with full load of deionizing resin. Nominal output 6-12 m <sup>3</sup> /h.	1
4.	Neutralizer of 600 L capacity made out of strong PVC.	1
5.	Storage tanks for deionized water 5000 L capacity stainless steel, with a coarse filter between tank and distillation unit.	2
6.	Storage tanks for distilled water 5000 L capacity made out of 18/8 stainless steel polished fitted with air filter 0.8 – 1.0 microns and arrangement to heat to 85°C.	2
7.	Stainless steel vats for solution preparation (ss 18/8) capacity 2000 L. Inner surface highly polished with jacket for heating and cooling. Stainless steel lid, equipped with graduation device with sterile air filter.	3
8.	Stirrers for the mixing vats for wall fixation. Axle and propeller of stainless steel 18/8 complete with driven motor of 1,1 KW and holder.	3

9.	Filtering units for solution. Output 50L/min; complete with stainless steel centrifugal pump and motor of 2,1 KW. Built-on filter holder in stainless steel for membrane filter 0.44 m/h and 0.2 m/h filters.	2
10.	Sets of pre-filters and filters membrane for the filtering unit (including 500 pre-filters and 500 filter membranes).	2
11.	Bag pack type 302 – cavity mould integrated below moulding and filling machines for polypropylene capacity 1200 Bags /h of 500ml with ancillary equipment including two moulds, regranulator, sterile air compressor, filters, etc.	2
12.	Autoclaves for sterilization: double door, horizontal type. Minimum capacity - 3 cubic meters designed for polypropylene bottles with automatic counter pressure adjustment. Inner chamber made out of stainless steel AISI 316 jacketed. Insulated with mineral wool. Doors equipped with automatic locking and safety device provided with ancillary equipment and controls for automatic steam sterilization. Standard sampler made of stainless steel AISI 316 with immersion probe showing temperature inside the bags. Possibility of ventilating chamber.	2
13.	Sets of carriages and stainless steel trolleys and baskets for sterilization of filled bags adopted to the autoclave.	12
14.	Labelling machine 1000 bags /h	2
15.	Polarimeter for dextrose determination complete with sodium lamp and observation tubes of 100 and 200 mm.	1
16.	Flame photometer for sodium and potassium determination complete with air compressor	1
17.	Laminar flow bench for bacteriological laboratory 80 x 50 cm, complete with illumination tubes and filter holder.	1
18.	Bacteriological stove for incubation inner volume 36l. Temperature ranges up to 70° C, Power 0, 2 kw regulation by thermostat.	1

19.	Electric stove for instrument sterilization inner volume 551, temperature range 24 – 40°C, power: 1,2 kw, equipped with thermostat.	1
20.	Sets of rabbits cages (for 48 rabbits). Cages mounted on metallic racks and equipped with feeding and drinking devices. Automatic washing by periodic water flow. Automatically regulated supplied with 6 retention boxes for rabbits	One set
21.	Temperature measuring device for rabbits. Direct reading on scale. Complete with connecting box and 9 temperature probes.	1
22.	Air compressor with compressed air tank of 3200 L. output: 360 m <sup>3</sup> /h working pressure: 7 kg/cm <sup>2</sup> complete with automatic regulation and noise protective case. Water lubricated type; oil lubricated type not suitable.	1
23.	One steam boiler, complete with water feeding tank and switch panel for automatic regulation. Output: 1L/h. Equipped with particle retaining filter or a sterile filter and stainless steel exchanger.	2
24.	Standby Diesel generator 200 KVA with switch board for automatic switch on in case of power failure equipped with accessories.	1
25.	0.8m <sup>3</sup> autoclaves for sterilizing filters and small parts.226.Equipment for thin layer chromatography	1
27.	U.V. spectrograph.	1
28.	Analytical balances.	3
29.	Automatic particle counter.	1
30.	Slit sampler for the microbiological environmental control in clean rooms.	1
31.	Microscope for microbiological work.	1
32.	Equipment for sterility tests.	One set
33.	Bacterial counter.	1

34.	Turbidimeter and the necessary equipment to carry out limulus Amoebocyte Lysate Test for routine controls.	1
35.	Shelves and cupboards I sterile area for men and women.	As required
36.	Stainless steels tables with sink, shelves.	As required
37.	Weighing scales, different denomination for raw materials.	3
38.	Stainless steel loading cars and under cars.	4sets
39.	Stainless steel unloading cars with unloading cars for cooling period, labelling	4sets
40.	Tables and shelve.	As required
41.	Storage shelve for control bottles	As required
42.	Storage shelve for raw materials.	As required
43.	Raw Materials for commissioning and testing.	As required
44.	Air conditioning and ventilation plant: clean areas should have a separate air conditioning system provided with disinfection dampers. Mixing room with cleanliness class B or class A.	1 unit
45.	Other equipment required for complete analysis including chemical analysis, sterility and pyrogen testing.As required.	As required
46.	Equipping animal house for pharmacological testing.	



## PERSONNEL REQUIREMENT

Serial No.		<u>Production</u>	<u>Laboratory</u>	<u>Maintenance</u>	<u>Administration</u>
1	Pharmacist /chemical engineer	1	1		
2	Supervisor	3			1
3	Mechanical/electrical engineer			3	
4	Operators /technicians	6	3		
5	Skilled workers	30		3	
6	Unskilled workers	5			
		45	4	6	1

Grand Total= 56

\* Secretaries, driver, cleaners, and watchmen are not included.

## ESTIMATED PROJECT COST

**Naira**

Cost of equipment	3,120,000,000.00
Handling charges in Nigeria	218,400,000.00
Installation charges	312,000,000.00
Leasing of warehouse	468,000,000.00
Expenses Cost	468,000,000.00
Estimated Cost of Project	<b>4,586,400,000.00</b>
Sales Turnover per annum	
Breakeven 3 Years	<b>3,974,400,000.00</b>

## Strategy and Implementation Summary

We shall begin with a customized product, tailored to the needs of a local hospitals and clinics, which will eventually become a niche product that will fit the needs of the hospitals and clinics in the entire nation. Our marketing strategies is built to reach our customers across the country. We will comply with all regulations required in the pharmaceutical production sector.

## Marketing Strategy

Our marketing strategy will be to:

- Fulfill regulatory requirements/NAFDAC approval.
- Publicize clinical data in recognized national papers.
- Take part in exhibitions
- Advertise in relevant social media targeting specific customers.
- Advertise in Medical and Pharmaceutical journals.

## Pricing Strategy

In the high-demand intravenous fluid products market, pricing is based on the level of other similar products, already on the market. The Nigerian end-user market price for a standard IV fluid is around ₦1,000 for 500ml and ₦2,000 for 1000ml. We intend to introduce Patwillis Medics IV fluid at the same level of price. Our prices to distributors will be ₦525 (VAT inclusive), which provides the distributor enough margin to take care of its national market.

## Promotion Strategy

The long-range goal is to create enough visibility to achieve the best penetration possible on the different markets. We are intending to do it through:

- Scientific publications: a clinical study will be published.
- Advertising in specialized social media networks: Facebook, Instagram, YouTube and Google
- TV and Radio advertising across the country.
- Private clinical support and conferences by our medical and surgical consultants, who has accumulated strong experience.

## Distribution Strategy

Implementing the most efficient distribution method for your business is the key to obtaining revenue and retaining customer loyalty. The distribution of PATWILLIS IV Fluid will be carried out:

- Either through national distribution in Nigeria.
- Exclusive distribution
- Or Channel Distribution; this entails both direct and indirect distribution channels.

In the light of considerations above, the company shall regularly update its distribution strategy. As result, without the adequate response to the turbulent situations that may occur in the market, the company's chances of succeeding will be decreasing.

## Marketing Programs

Our most important marketing program is NAFDAC approval and subsequently World Health Organization (W.H.O.). This approval will allow us to sell our intravenous fluid in Nigeria and subsequently to other African countries. Achievement should be measured by receiving a NAFDAC number, which has to be printed on all packaging of the products. Another key marketing program is the national distribution network, which most have a nationwide coverage. Achievement should be measured by signed agreements in the different states in the country. The next important milestone is the Trade mark and patent approval process. Achievement should be measured by receiving the official approval document.

## Sales Strategy

The sales strategy has been forecasted as follows: Sales through Nationwide Distribution In Nigeria a nationwide distributors will be chosen. By signing a distribution agreement, the distributors have to order a minimum quantity of products to be sold in the geopolitical zone. This quantity is to be reviewed each year. He will at first develop the hospital market, then the homecare and clinics market. Each distributor is supposed to have a team of salesmen or saleswomen who are in charge of visiting hospital and clinics in the country. Each salesperson is in charge of several states in one area of the country. The distributors should have five or six salesmen or women to cover their region in the country. The distributors should have enough products on the shelves to serve the needs of their region. The salespeople would sell products to public and private hospitals and clinics. Invoicing to hospital, delays of payment of hospitals, shipment to hospitals, IV fluids freely deposited in hospitals are under the management of the distributor. Sales through state wide distribution once the state wide distribution channel is chosen, the sales strategy will be discussed together with the state distribution company. It does not differ fundamentally from Nationwide. The major difference is that the state sales team may belong to the state distributor, or be independent from the state distributor.

## Sales Forecast

Our sales forecast assumes no change in costs or prices, which is a reasonable assumption for the last few years. We are expecting to increase sales from N4 Billion to N5 Billion the third year. The growth forecast is very high, but we are developing new products. We expect growth of the hospital and clinics market, where the product is really needed. We are not projecting significant change in the product line, or in the proportion between different lines.

## Sales forecast

Sales forecast	Naira		
Unit Sales	Year 1	year 2	year 3
Patwillis IV Fluid Bags	7,948,800	8,812,800	10,281,600
Others	-	-	-
Total Unit sales	7,948,800	8,812,800	10,281,600
Unit Price			
Patwillis IV Fluid bags	525	525	525

Sales			
Patwillis IV Fluid bags	4,173,120,000	4,626,720,000	5,397,840,000
Others	-	-	-
Total Sales	4,173,120,000	4,626,720,000	5,397,840,000
Direct Unit Cost			
Patwillis IV Fluid bags	300	300	300
Direct Cost			
Patwillis IV Fluid Bag	2,384,640,000	2,643,840,000	3,084,480,000
Others	-	-	-
Total Direct Cost	2,384,640,000	2,643,840,000	3,084,480,000

## Milestones

Milestone	Start Date	End Date	Budget	Manager	Department
Writing of Business Plan	12/17/2021	01/16/2022	NO	DIRECTOR	
Business re-registration	01/02/2022	02/16/2022	NO	DIRECTOR	
Application for development financing from bank	18/02/2022	03/16/2022	NO	DIRECTOR	
Manufacturing Facility Setup	03/21/2022	06/25/2022	NO	DIRECTOR	
NAFDAC Approval	04/05/2022	04/27/2022	NO	DIRECTOR	
World Health Organisation W.H.O. Approval	04/20/2022	05/01/2022	NO	DIRECTOR	
Hiring of production staff	03/10/2022	03/16/2022	NO	DIRECTOR	
Compilation of employee handbook for operations	12/11/2021	01/16/2022	NO	DIRECTOR	
Nationwide distribution network	12/2/2021	01/16/2022	NO	DIRECTOR	
Purchase Insurance for the business	12/1/2022	01/16/2022	NO	DIRECTOR	
Secure Health and Safety license	06/5/2022	06/16/2022	NO	DIRECTOR	
Establish business relationship with local stakeholders	12/5/2021	01/16/2022	NO	DIRECTOR	
Purchase Equipment for Pharmacy outlets	12/7/2022	01/16/2023	NO	DIRECTOR	
Engage Marketing professional	05/1/2022	05/16/2022	NO	DIRECTOR	
Recruitment of Employees	03/2/2022	03/16/2022	NO	DIRECTOR	
<b>Totals</b>			<b>NO</b>		

## Management Summary

Patwillis Medic is owned and operated by its founders and Investors, working with a competent employee base that will cover sales and delivery.

Management style also reflects the participation of the owners. The company respects its community of co-workers and treats all workers well. We attempt to develop and nurture the company as a community.

### 6.1 Organizational Structure

The following Persons are the founders of Patwillis Medics Limited and they are responsible for overall business management.

Mr. Vincent Akin Williams (Managing Director/CEO) BSc Hons, Harvard ENGSC1137, Edinburgh CCSX, NEBOSH and HSE, PGC, CPD. Founder Patwillis Medics Limited.

Dr. Abuyazid Bashir (Medical Director) Mb.ch, PDFM. Family Physician (Retired) Founder Patwillis Medics Limited.

These are the Directors and Share holders of Patwillis Medics Limited.

Dr. Sunday Ade Orogade, FNSE, FNICE, COREN.  
CIV-STRUCT ASSOCIATE (Chartered Civil/Structural and Environmental Consultant)

Alh. Shuaibu Idris mni Member, Board of Trustee IPF, Representing Registered Share Holders.

Alh. Hashim Ubale (Pharmacist) Retired Director NAFDAC.

### 6.3 Personnel Plan

The personnel plan has been projected to cover the production needs over the considered period. Two production managers alongside 10 other factory workers, working eight hours a day, five days a week, are able to manufacture up to 7,948,800 IV fluids bag a year. If we add another team of two people, the production capacity reaches 8,812,800 the following year. We will have a strong benefits policy with fully paid medical insurance for employees. Salaries are generally in line with market pay, although our benefits are above standard market level, so we ultimately will pay a bit more for our people than what might be considered industrial standard in the area. However, we are at the same level in our industrial area with other local medical companies and biotech companies.

#### Table: Personnel

Personnel Plan	2022	2023	2024
Retail Personnel			
Customer Service Executive: Level 2	N1,500,000	N1,500,000	N1,800,000
Customer Service Executive: Level 1	N1,600,000	N1,600,000	N1,820,000

Purchasing Manager	N1,500,000	N1,500,000	N1,800,000
Subtotal	N4,600,000	N4,600,000	N5,420,000
Sales and Marketing Personnel			
Marketing and Sales Executive	N1,500,000	N1,500,000	N1,800,000
Subtotal	N0	N1,500,000	N1,800,000
General and Administrative Personnel			
Chief Executive Officer	N15,000,000	N15,000,000	N18,000,000
Chief Director Quality Assurance	N13,000,000	N13,000,000	N15,600,000
Chief Director Operations & IT	N13,000,000	N13,000,000	N15,600,000
Human Resource Manager	N3,000,000	N3,000,000	N3,600,000
Warehouse Manager	N1,500,000	N1,500,000	N1,800,000
Chief Financial Officer	N8,000,000	N8,000,000	N9,600,000
Store Manager	N1,500,000	N1,500,000	N1,800,000
Accounts Officer	N1,500,000	N1,500,000	N1,800,000
Subtotal	N56,500,000	N56,500,000	N67,800,000
Other Personnel			
Driver	N600,000	N600,000	N720,000
Health and Safety Officer	N1,200,000	N1,200,000	N1,440,000
Inventory Manager	N1,500,000	N1,500,000	N1,800,000
Cleaner	N600,000	N600,000	N720,000
Chief Security Officer	N1,800,000	N1,800,000	N2,160,000
Security Personnel	N600,000	N600,000	N720,000
Subtotal	N6,300,000	N6,300,000	N7,560,000
Total People	56	56	61
<b>Total Payroll</b>	<b>N68,900,000</b>	<b>N68,900,000</b>	<b>N82,580,000</b>

## Financial Plan

The financial picture is quite encouraging. Sales are projected to start slowly, but this is due to the necessity of receiving Trade mark, NAFDAC and WHO approval

We are looking to fund a total package of NGN2,000,000,000 to support our growth plan, management style, and vision. We also want to finance growth mainly through cash flow. Collection days are very important. We do not want to let our average collection days get above 45 under any circumstances. We must maintain gross profit margins of 90% at the least, and hold marketing costs to no more than 5%. We are planning to receive tax exemption from the federal ministry of finance, which means that federal tax payment is exempt and we will enjoy net profit (around 10%) in 2022. In the meantime we will enjoy tax exemption for a period before the commencement of tax payment

This total package has been broken into three phases, which is important to note, since at any time the management may decide that further funding is not necessary.

Our three-year sales projection shown below, profit and loss statement, cash flow analysis and balance sheet herein support this financial plan.

### 7.1 Important Assumptions

The financial plan depends on important assumptions, most of which are shown in the following table. The key underlying assumptions are:

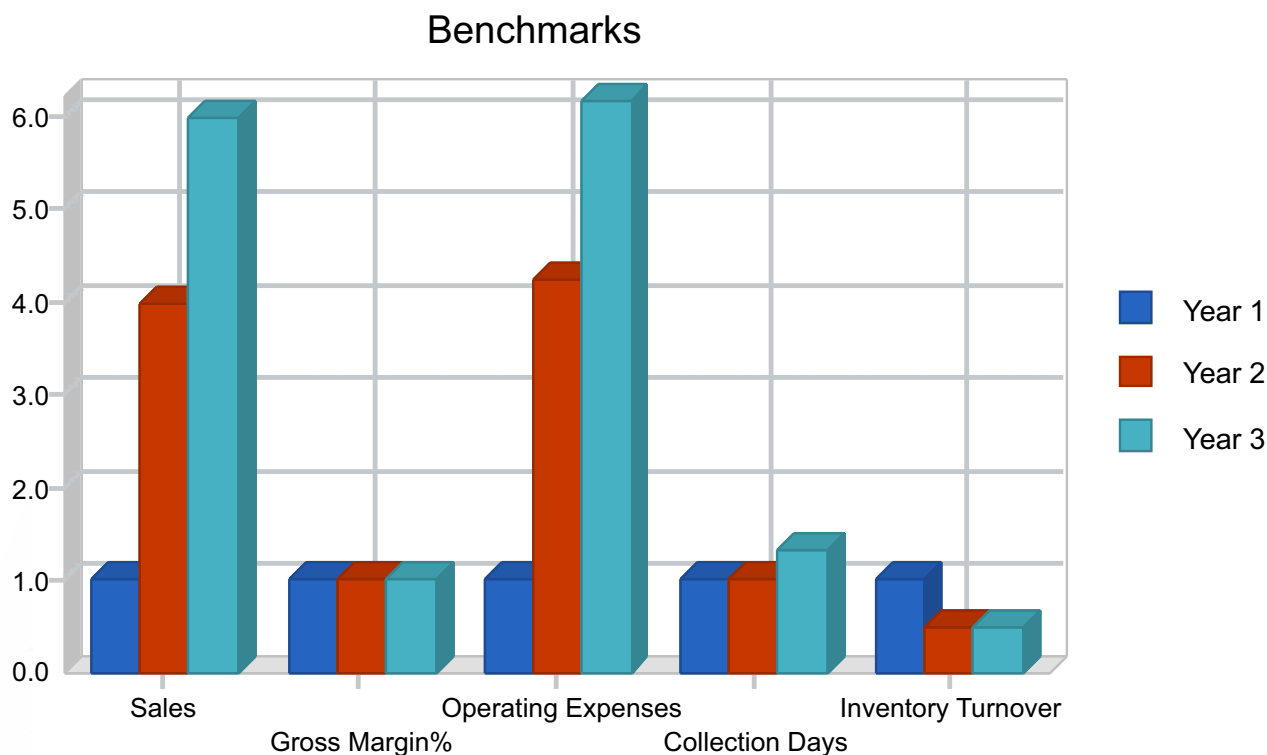
- We assume a slow-growth economy, without major recession.
- We assume of course that there are no unforeseen changes in technology to make products immediately obsolete.
- We assume access to equity capital and financing is sufficient to maintain our financial plan as shown in the tables.

General Assumptions	Year 1	Year 2	Year 3
Plan Year	1	2	3
Current Interest Rate	6.00%	6.00%	6.00%
Long-term Interest Rate	5.00%	5.00%	5.00%
Tax Rate	11.67%	10.00%	11.67%
<b>Other</b>	0	0	0

### Key Financial Indicators

The following chart shows changes in key financial indicators: sales, gross margin, operating expenses, collection days, and inventory turnover.

## Chart: Benchmarks



### 7.3 Break-even Analysis

Our Break-even Analysis is based on running costs, the "burn-rate" costs we incur to keep the business running, not on theoretical fixed costs that would be relevant only if we were closing. Between payroll, rent, utilities, and basic marketing costs, we think the number shown in the table is a good estimate of fixed costs.

The Break-even Analysis shows that Patwillis Medics has a good balance of fixed costs and sufficient sales strength to remain healthy. The essential insight here is that our sales level seems to be running comfortably above break-even.

#### Table: Break-even Analysis

Break-even Analysis	
Monthly Break-even point	529,920
Monthly Revenue Break-even	N158,976,000
Assumptions:	
Average Percent Variable Cost	40%
<b>Estimated Monthly Fixed Cost</b>	<b>N95,385,600</b>



## 7.4 Projected Profit and Loss

We expect sales to hit ₦4Billion for the first year. It should increase to ₦ 4.5 Billion by the second year of this plan, as net earnings increase steadily. Our high sales volume has lowered our cost of goods and increased our gross margin. This increase in gross margin is important to profitability.

Pro Forma Profit and Loss	2022	2023	2024
Sales	N4,173,120,000	N4,626,720,000	N5,397,840,000
Direct Cost of Sales	N2,384,640,000	N2,643,840,000	N3,084,480,000
Retail Payroll	N4,600,000	N4,600,000	N5,420,000
Other Costs of Sales	N0	N0	N0
Total Cost of Sales	N2,389,240,000	N2,648,440,000	N3,089,900,000
Gross Margin	N1,783,880,000	N1,978,280,000	N2,307,940,000
Gross Margin %	42.73%	42.80%	42.81%
Operating Expenses			
Sales and Marketing Expenses			
Sales and Marketing Payroll	N1,500,000	N1,500,000	N1,800,000
Advertising/Promotion	N15,000,000	N13,000,000	N15,000,000
Other Sales and Marketing Expenses	N41,506,000	N41,484,000	N33,399,920
Total Sales and Marketing Expenses	N58,006,000	N55,984,000	N50,199,920
Sales and Marketing %	1.39%	1.21%	0.93%
General and Administrative Expenses			
General and Administrative Payroll	N56,500,000	N56,500,000	N67,800,000
Marketing/Promotion	N2,000,000	N3,000,000	N3,500,000
Depreciation	N350,000,000	N350,000,000	N350,000,000
Rent	N10,000,000	N10,000,000	N10,000,000
Utilities	N10,500,000	10,500,000	N10,500,000
Insurance	N1,000,000	N3,000,000	N3,000,000
Payroll Taxes	N10,335,000	N10,335,000	N12,387,000
Other General and Administrative Expenses	N7,000,000	N7,000,000	N15,000,000
Total General and Administrative Expenses	N447,335,000	N450,335,000	N472,187,000
General and Administrative %	10.71%	9.73%	8.75%
Other Expenses:			
Other Payroll	N6,300,000	N6,300,000	N7,560,000
Consultants	N10,000,000	N10,000,000	N10,000,000
Other Expenses	N0	N0	N0

Total Other Expenses	N16,300,000	N16,300,000	N17,560,000
Other %	0.004%	0.35%	0.32%
Total Operating Expenses	N521,641,000	N522,800,000	N557,547,000
Profit Before Interest and Taxes	N1,262,239,000	N1,455,480,000	N1,750,393,000
EBITDA	N1,612,239,000	N1,805,480,000	N2,100,393,000
Interest Expense	N300,000,000	N300,000,000	N300,000,000
Taxes Incurred	N291,285,923	N335,880,000	N403,936,846
Net Profit	N670,953,077	N819,600,000	N1,046,456,154
<b>Net Profit/Sales</b>	<b>16.07%</b>	<b>17.71 %</b>	<b>19.38%</b>

## Projected Cash Flow

Cash flow projections are critical to our success. We expect to manage the cash flow to succeed in archiving the desired business objectives and goal over the next three years.

**Table: Cash Flow**

Pro Forma Cash Flow	2022	2023	2024
Cash Received			
Cash from Operations			
Cash Sales	N2,173,120,000	N4,626,720,000	N5,397,840,000
Subtotal Cash from Operations	N2,173,120,000	N4,626,720,000	N5,397,840,000
Additional Cash Received			
New Long-term Liabilities	N2,000,000,000	NO	NO
Subtotal Cash Received	N4,173,120,000	N4,626,720,000	N5,397,840,000
Expenditures	2022	2023	2024
Expenditures from Operations			
Cash Spending	N68,900,000	N68,900,000	N82,580,000
Bill Payments	N1,226,897,280	N1,360,255,680	N1,586,964,960
Subtotal Spent on Operations	N1,295,797,280	N1,429,155,680	N1,669,544,960
Additional Cash Spent			
Long-term Liabilities Principal			
Repayment	NO	N500,000,000	N500,000,000
Purchase Other Current Assets	N500,000,000	N200,000,000	N300,000,000
Purchase Long-term Assets	N1,500,000,000	NO	NO
Dividends	NO	NO	NO
Subtotal Cash Spent	N3,295,797,280	N2,129,155,680	N2,469,544,960
Net Cash Flow	N877,322,720	N2,497,564,140	N2,928,295,040
<b>Cash Balance</b>	<b>N877,322,720</b>	<b>N3,374,886,860</b>	<b>N6,303,181,900</b>

## Projected Balance Sheet

The table shows the annual balance sheet results, with a healthy projected increase in net worth.

<b>Table: Balance Sheet</b>			
Pro Forma Balance Sheet	2022	2023	2024
<b>Assets</b>			
<b>Current Assets</b>			
Cash	N386,284,459	N458,759,295	N684,993,151
Inventory	N45,500,000	N55,055,000	N72,072,000
Other Current Assets	N505,395,886	N605,395,886	N730,395,886
<b>Total Current Assets</b>	<b>N937,180,345</b>	<b>N1,119,210,181</b>	<b>N1,487,461,037</b>
<b>Long-term Assets</b>			
Long-term Assets	N1,534,965,000	N1,534,965,000	N1,534,965,000
Accumulated Depreciation	N75,000,000	N150,000,000	N225,000,000
<b>Total Long-term Assets</b>	<b>N1,459,965,000</b>	<b>N1,384,965,000</b>	<b>N1,309,965,000</b>
<b>Total Assets</b>	<b>N2,397,145,345</b>	<b>N2,504,175,181</b>	<b>N2,797,426,037</b>
<b>Liabilities and Capital</b>			
<b>Current Liabilities</b>			
Accounts Payable	N24,886,819	N42,089,279	N48,548,365
Current Borrowing	NO	NO	NO
Other Current Liabilities	N2,282,515	N2,282,515	N2,282,515
<b>Subtotal Current Liabilities</b>	<b>N27,169,334</b>	<b>N44,371,794</b>	<b>N50,830,880</b>
<b>Long-term Liabilities</b>			
<b>Total Liabilities</b>	<b>N2,025,000,000</b>	<b>N1,525,000,000</b>	<b>N1,025,000,000</b>
<b>Total Liabilities</b>	<b>N2,052,169,334</b>	<b>N1,569,371,794</b>	<b>N1,075,830,880</b>
<b>Capital</b>			
Paid-in Capital	N1,000,000	N1,000,000	N1,000,000
Retained Earnings	N13,433,451	N343,976,011	
N933,803,387 Earnings	N330,542,560	N589,827,376	N786,791,770
<b>Total Capital</b>	<b>N344,976,011</b>	<b>N934,803,387</b>	<b>N1,721,595,157</b>
<b>Total Liabilities and Capital</b>	<b>N2,397,145,345</b>	<b>N2,504,175,181</b>	<b>N2,797,426,037</b>
<b>Net Worth</b>	<b>N344,976,011</b>	<b>N934,803,387</b>	<b>N1,721,595,157</b>

## 7.6 Business Ratios

The table shows projected business ratios.

Table: Ratios

Ratio Analysis	2022	2023	2024	2025	2026	Industry Profile
Sales Growth	2127.38%	30.00%	20.00%	24.35%	25.00%	2.34%
Percent of Total Assets						
Inventory	1.90%	2.20%	2.58%	2.77%	2.77%	27.53%
Other Current Assets	21.08%	24.18%	26.11%	27.02%	27.37%	30.64%
Total Current Assets	39.10%	44.69%	53.17%	63.14%	72.52%	88.46%
Long-term Assets	60.90%	55.31%	46.83%	36.86%	27.48%	11.54%
Total Assets	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Current Liabilities	1.13%	1.77%	1.82%	1.81%	1.73%	43.21%
Long-term Liabilities	84.48%	60.90%	36.64%	15.67%	0.59%	21.84%
Total Liabilities	85.61%	62.67%	38.46%	17.48%	2.32%	65.05%
Net Worth	14.39%	37.33%	61.54%	82.52%	97.68%	34.95%
Percent of Sales						
Sales	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Gross Margin	60.17%	66.32%	66.35%	66.35%	66.36%	38.34%
Selling, General & Administrative Expenses	36.22%	33.44%	29.81%	27.38%	25.78%	16.49%
Advertising Expenses	0.11%	0.10%	0.09%	0.09%	0.09%	1.24%
Profit Before Interest and Taxes	49.90%	58.24%	59.67%	60.20%	60.50%	7.37%
Main Ratios						
Current	34.49	25.22	29.26	34.97	41.89	1.83
Quick	32.82	23.98	27.85	33.43	40.30	1.19
Total Debt to Total Assets	85.61%	62.67%	38.46%	17.48%	2.32%	65.05%
Pre-tax Return on Net Worth	140.91%	92.79%	67.21%	55.49%	48.44%	65.51%
Pre-tax Return on Assets	20.28%	34.64%	41.36%	45.79%	47.31%	22.89%
Additional Ratios	2022	2023	2024	2025	2026	
Net Profit Margin	23.95%	32.88%	36.55%	38.97%	40.58%	n.a
Return on Equity	95.82%	63.10%	45.70%	37.73%	32.94%	n.a
Activity Ratios						
Inventory Turnover	12.00	11.95	11.34	10.87	10.69	n.a
Accounts Payable Turnover	39.29	26.07	26.07	26.07	26.07	n.a
Payment Days	12	11	13	13	13	n.a
Total Asset Turnover	0.58	0.72	0.77	0.80	0.79	n.a

Debt Ratios						
Debt to Net Worth	5.95	1.68	0.62	0.21	0.02	n.a
Current Liab. to Liab.	0.01	0.03	0.05	0.10	0.75	n.a
Liquidity Ratios						
Net Working Capital	N910,011,011	N1,074,838,387	N1,436,630,157	N2,054,829,234	N2,987,730,205	n.a
Interest Coverage	3.40	5.89	10.07	20.80	73.62	n.a
Additional Ratios						
Assets to Sales	1.74	1.40	1.30	1.25	1.26	n.a
Current Debt/Total Assets	1%	2%	2%	2%	2%	n.a
Acid Test	32.82	23.98	27.85	33.43	40.30	n.a
Sales/Net Worth	4.00	1.92	1.25	0.97	0.81	n.a
<b>Dividend Payout</b>	0.00	0.00	0.00	0.00	0.00	n.a

## 7.7 Long-term Plan

Patwillis Medics intends to grow into a multi-billion dollar a year distributor of high-quality medical products and equipment. Leveraging on its retail and wholesale component within the next five (5) years to become a major player in the Nigerian Pharmaceutical Industry, and establish a nationwide franchise of Patwillis Medics retail pharmacies and distribution outlets across the country.

Our public offering in year seven will provide the funding to launch a retail rollout that will take us to 1000 stores in the following seven years, expand our e-commerce program and grow our catalogue distribution. It will allow us to begin the development of new product lines.

We will move to worldwide distribution. Once the brand has been established it will have significant cache with the African market.

Patwillis Medics will become one of the most recognized brands in the African Pharmaceutical Industry.