



Assessment of Economic Feasibility of ARTCenter in Cocoon Hospital, Jaipur

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Background

- Reproductive health is a state of complete physical, mental, and social well-being in all aspects relating to the reproductive system and to its functions and processes. It is very important for every person to have access to right healthcare treatment.
- In today's scenario, infertility is becoming a greater cause of concern. As per the study conducted by Inito, 10-14 percent of Indian couples suffer from infertility which accounts to around 27.5 million. Worldwide more than 80 million of population suffers from infertility. As per the WHO, infertility is defined as a disease of reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.

Literature Review

- **Arushi Vij ,2015** As per the feasibility study on IVF center conducted in 2015, IVF success rates are more in case of women who are below the age of 35 years of age. The Gynecology department witnessed a footfall of nearly 16423 patients in the past four months of which the diagnosed male and female infertility cases were 5% female and 1% male infertility cases. The revenue generated per patient for one month was calculated. Study Design used: Descriptive Study
- **R.K. Adageba, E.T. Maya,2010** As per the study conducted on 'Setting up and running successful IVF program in Africa, it is difficult in a region because of serious infrastructural challenges coupled with low levels of income is a daunting task.
- **Paridhi Mehra, 2011** According to the feasibility study conducted on providing home healthcare solutions to patients undergoing IVF treatment, launching the new product for IVF patients will be highly beneficial to the organization and will have a probability of success. Methodology used: The study is descriptive in nature and was carried out to find the gap and need of home healthcare for patients undergoing IVF treatment.

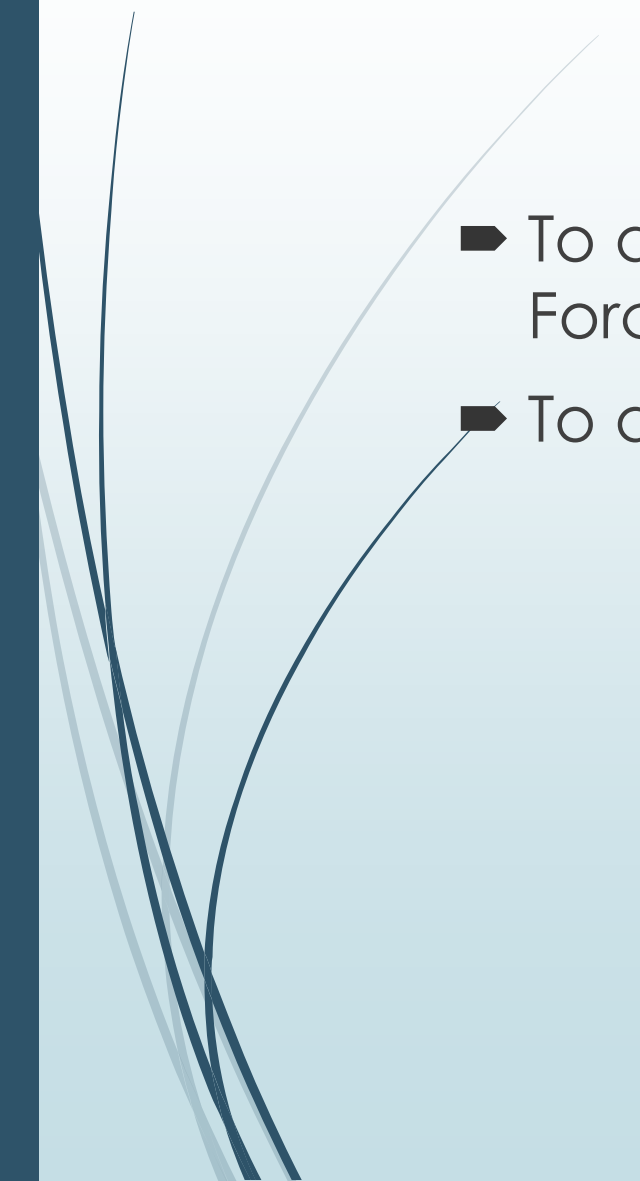


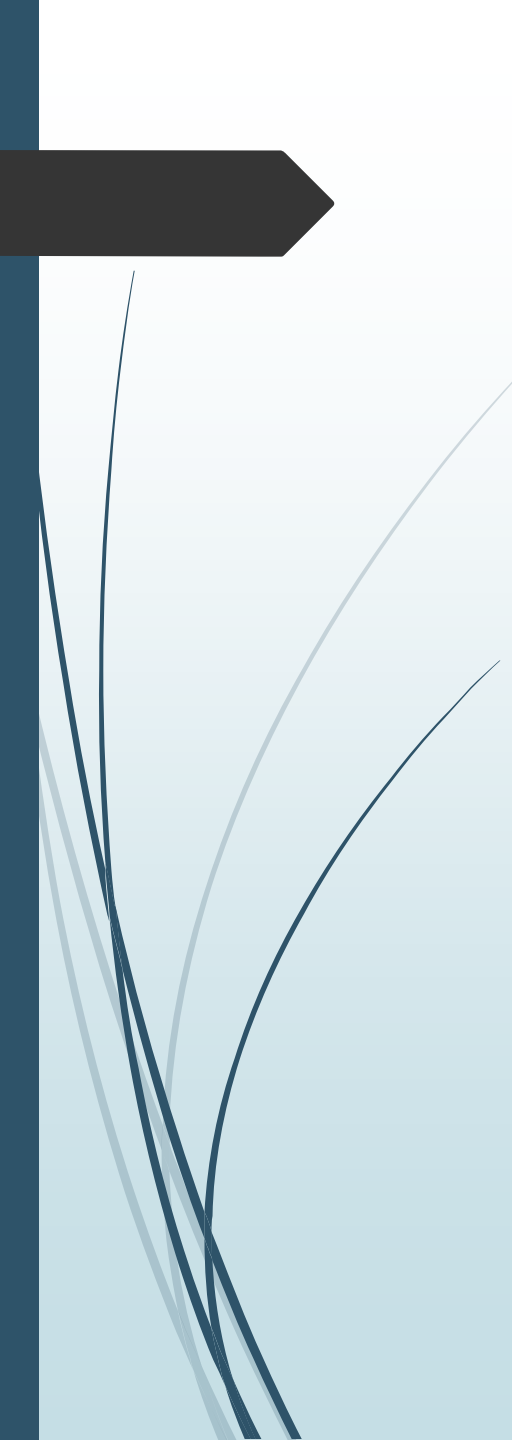
Research Question

- What is the Market and Economic Feasibility of setting an IVF Center in Cocoon Hospital?
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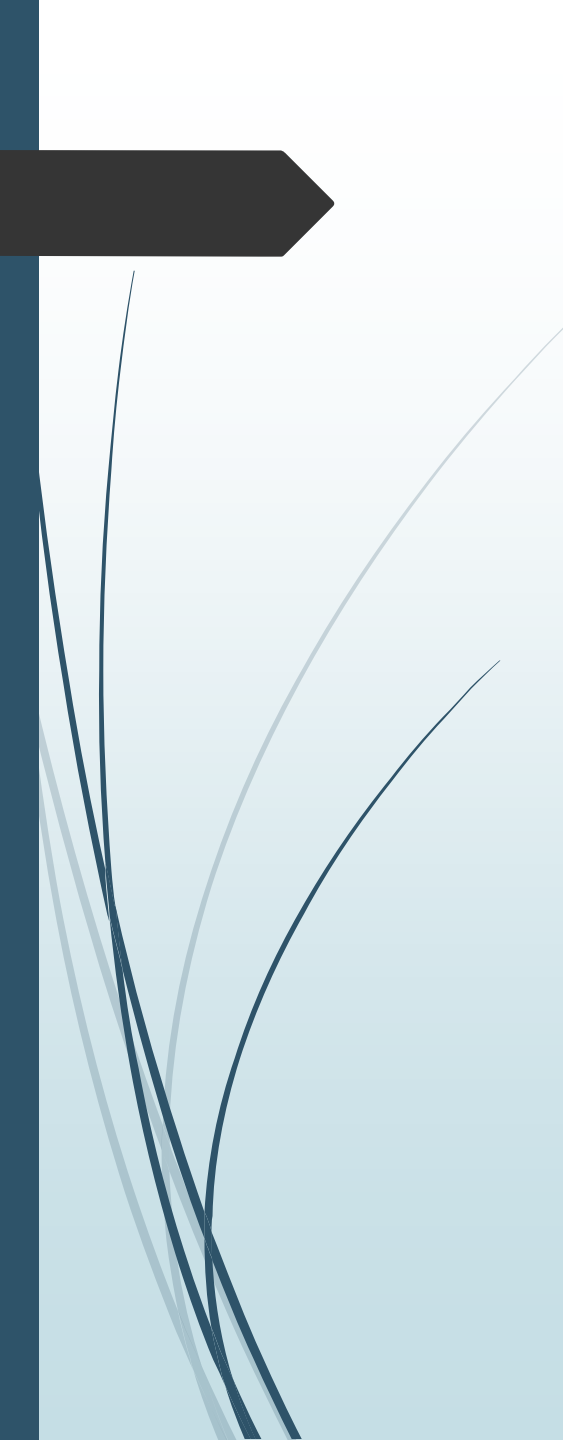
Objectives

- To determine the Market Feasibility through Porter's Five Forces and SWOT analysis.
 - To determine the Economic Feasibility through NPV.
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Methodology

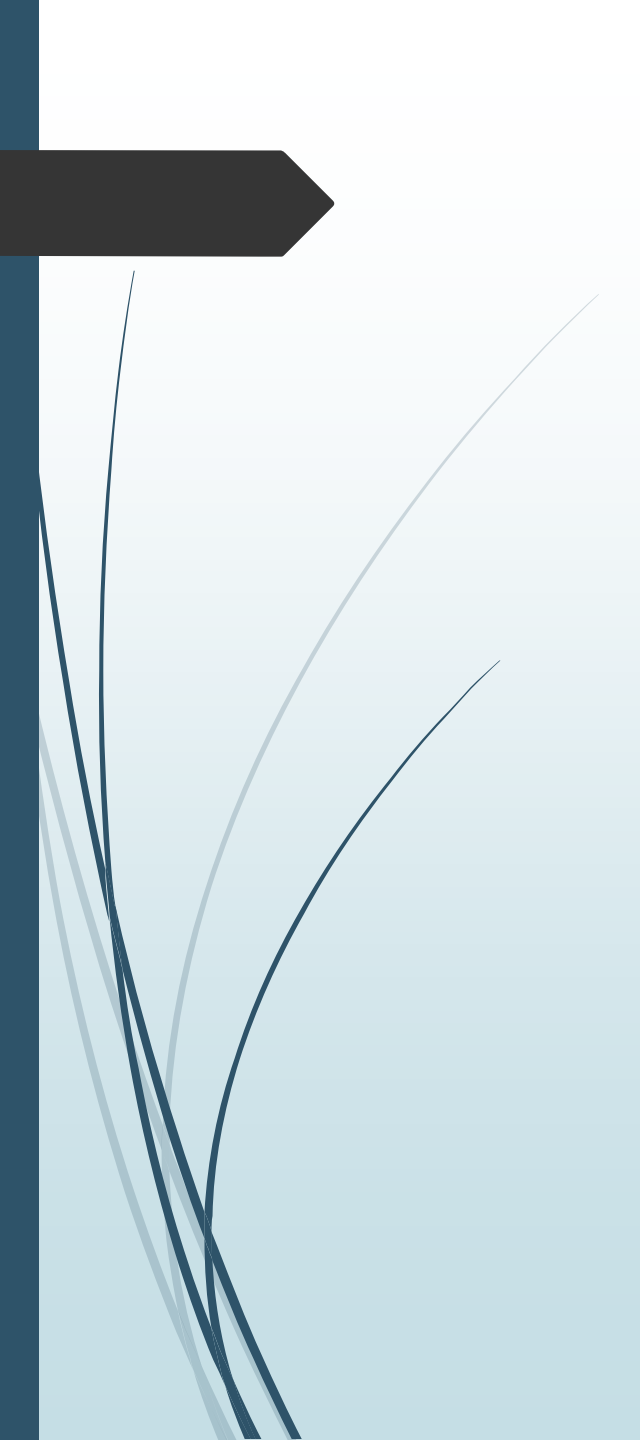
- **Study Design:** Descriptive Study
Combinations of qualitative and quantitative methods were used to map the viability for IVF center.
- **Study Duration:** 2 months (March 1, 2019- May 1, 2019)
- **Study Tool:** Questionnaire as provided by the organization was used for taking details from various IVF Centers in Jaipur.
- **Sample size:** 20 percent of IVF centers in Jaipur
Primary research: The data on IVF was obtained from the IVF centers functional in Jaipur to determine the demand trend of the patients suffering from infertility and opted for ART
Secondary research: For obtaining the list of equipments required along with their approximate price to set up IVF Center.
- **Sampling method:** Convenience Sampling
- **Study analysis plan:** The study aimed to determine the market feasibility by conducting a primary research on visited IVF centers present in Jaipur and demand estimation by calculating the average number of procedures held in the visited IVF centers in the month of January. Economic feasibility was determined by calculating the Net Present Value of cash flows for 4 years.



Objective 1: To determine the Market feasibility of the IVF Center

- ▀ Market Research

1. Need Analysis
2. Competitor Analysis



Need Analysis

Demand Estimation

As per the observations and discussion with the top management it was noticed that there have been walk in patients as well as referrals from the facility for the IVF treatment and other ART procedures. In the last three months following observations

► Query for IVF coming to Cocoon Hospital:

Months	No. of Patients
December,2018	11
January,2019	9
February,2019	13

► Patients referred for IVF treatment from Cocoon Hospital

Months	No. of Patients
December,2018	5
January,2019	3
February,2019	7

Rajasthan's Demographic Profile

Description	2011
Approximate Population	6.86 Crores
Actual Population	68,548,437
Male	35,550,997
Female	32,997,440
Population Growth	21.31%
Percentage of total Population	5.66%
Sex Ratio	928
Child Sex Ratio	888

Table1: Infertility Prevalence among Currently Married Women(20-49yrs) Women with Marital Duration of ≥ 2 yrs. in the Indian States and Selected High Prevalence Districts,2015-16

States/Districts	Ever experienced infertility (%)			Currently infertile (%)	Women (n)
	Total	Primary	Secondary		
States	8.8	6.7	2.1	4.6	532100
Jammu & Kashmir	9.0	7.1	1.9	3.5	13564
Himachal Pradesh	5.2	3.8	1.3	3.5	8917
Punjab	9.5	7.5	2.0	3.6	18375
Uttarakhand	5.4	3.8	1.5	3.7	11166
Haryana	12.0	9.2	2.8	3.6	18304
Rajasthan	5.2	3.8	1.4	6.0	35701
Uttar Pradesh	10.8	8.5	2.2	4.6	74327
Bihar	13.3	11.3	2.0	4.6	39157
Sikkim	8.0	5.8	2.1	2.4	3781
Arunachal Pradesh	3.1	2.1	1.1	5.8	12666
Manipur	7.4	3.3	4.1	3.1	7922
Mizoram	5.0	2.4	2.7	2.8	6281
Tripura	6.7	4.3	2.4	3.1	3467
Meghalaya	2.6	1.4	1.0	2.5	5546
Assam	5.0	2.8	2.1	3.6	25508
West Bengal	14.8	12.1	2.6	3.5	18250
Jharkhand	9.8	7.1	2.8	6.0	23341
Orissa	7.9	6.4	1.5	5.7	24144
Chhattisgarh	11.9	9.5	2.4	5.8	15513
Madhya Pradesh	7.3	5.3	2.0	4.8	40662
Gujarat	6.7	4.4	2.3	5.2	21252
Maharashtra	8.5	6.4	2.1	4.4	28869



INDIAN DEMOGRAPHIC DATA

Population

1,281,935,911 (July 2017 est.)

Age structure

0-14 years: 27.34% (male 186,087,665, female 164,398,204)

15-24 years: 17.9% (male 121,879,786, female 107,583,437)

25-54 years: 41.08% (male 271,744,709, female 254,834,569)

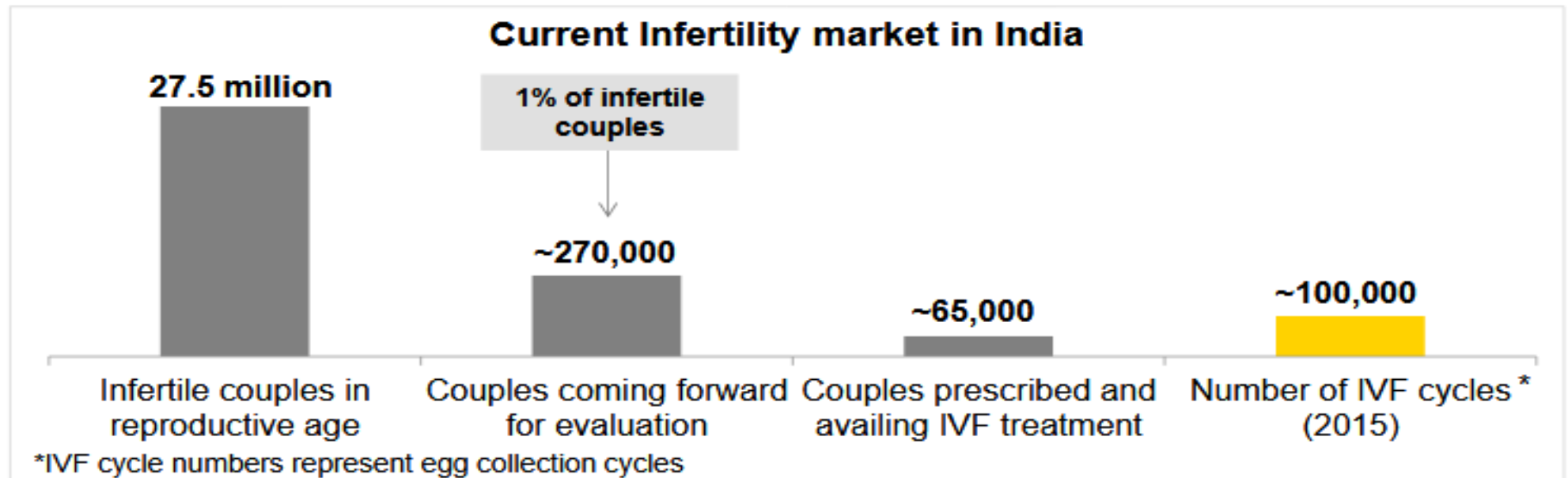
55-64 years: 7.45% (male 47,846,122, female 47,632,532)

65 years and over: 6.24% (male 37,837,801, female 42,091,086) (2017 est.)

Birth Rate

19 births/ 1000 population

The current treatment* market for infertility is estimated at ~100,000 *in-vitro* fertilization (IVF) cycles....



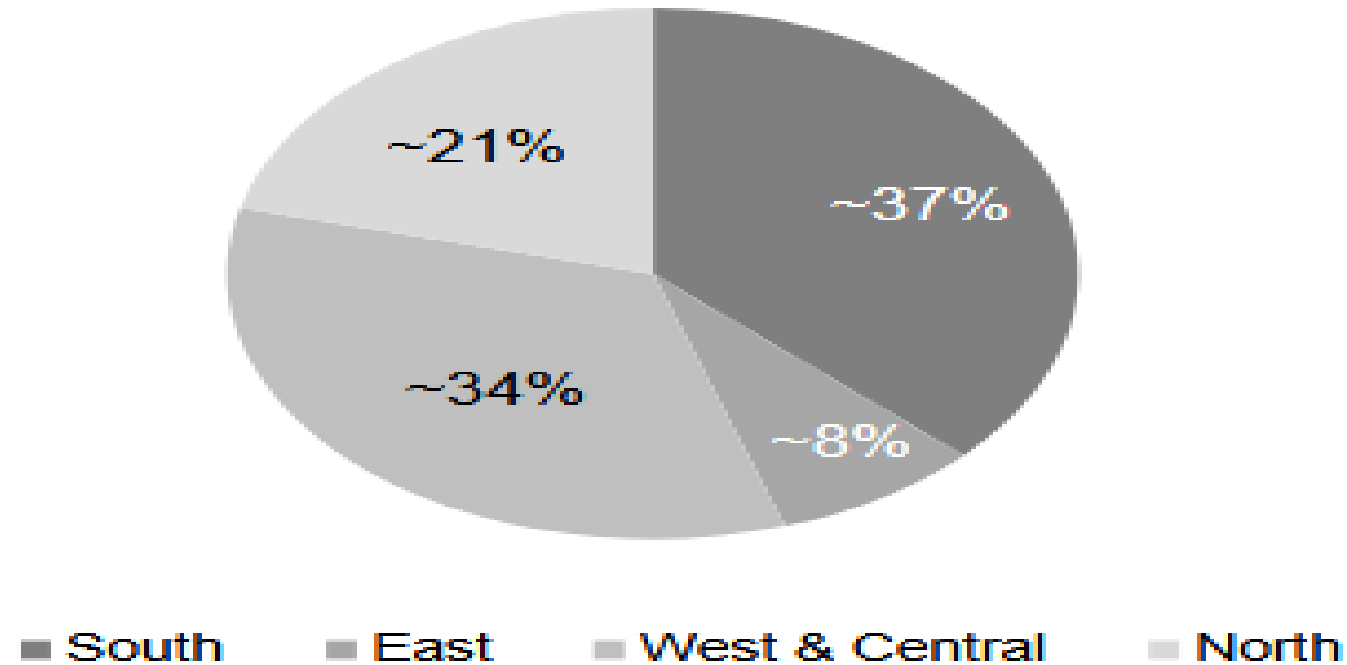
Basis

- ▶ **10%-15% prevalence** of infertility in India, in 2015^{11,12,14}
- ▶ **20%-25%** of the total couples registering at an infertility center undergo IVF
- ▶ This **represents 1% of the total infertile couples seeking** infertility treatment
- ▶ Assuming **1.5 IVF cycles** per couple
- ▶ Estimates of market size based on **primary interviews with KOLs, pharmaceutical companies and clinicians**

*The primary assisted reproduction treatment options for infertility include intrauterine insemination (IUI) and in-vitro fertilization (IVF). Surgical procedures may also be required in certain patients. Certain assisted reproduction procedures may require a male (sperm) or female (egg) donor. Some cases may also require a gestational surrogate. Fertility preservation is an emerging field, and due to the rising incidence of cancer in patients of reproductive age, there is an increase in cryo-preservation of egg or fertilized embryo in cancer patients prior to commencement of cytotoxic treatment.

Source: Primary interviews with KOLs, leading pharmaceutical companies, IVF specialists, data analysis of a leading IVF center, EY analysis

Geographical distribution of IVF cycles performed



▶ **75% of the market is captured by the top 500 clinics, comprising of a few corporate chains and leading private clinics, as of 2015⁴⁹**

Source: [https://www.ey.com/Publication/vwLUAssets/EY-call-for-action-expanding-ivf-treatment-in-india/\\$FILE/EY-call-for-action-expanding-ivf-treatment-in-india.pdf](https://www.ey.com/Publication/vwLUAssets/EY-call-for-action-expanding-ivf-treatment-in-india/$FILE/EY-call-for-action-expanding-ivf-treatment-in-india.pdf).
Primary interviews with KOLs and leading pharmaceutical companies, EY analysis

Services to be offered

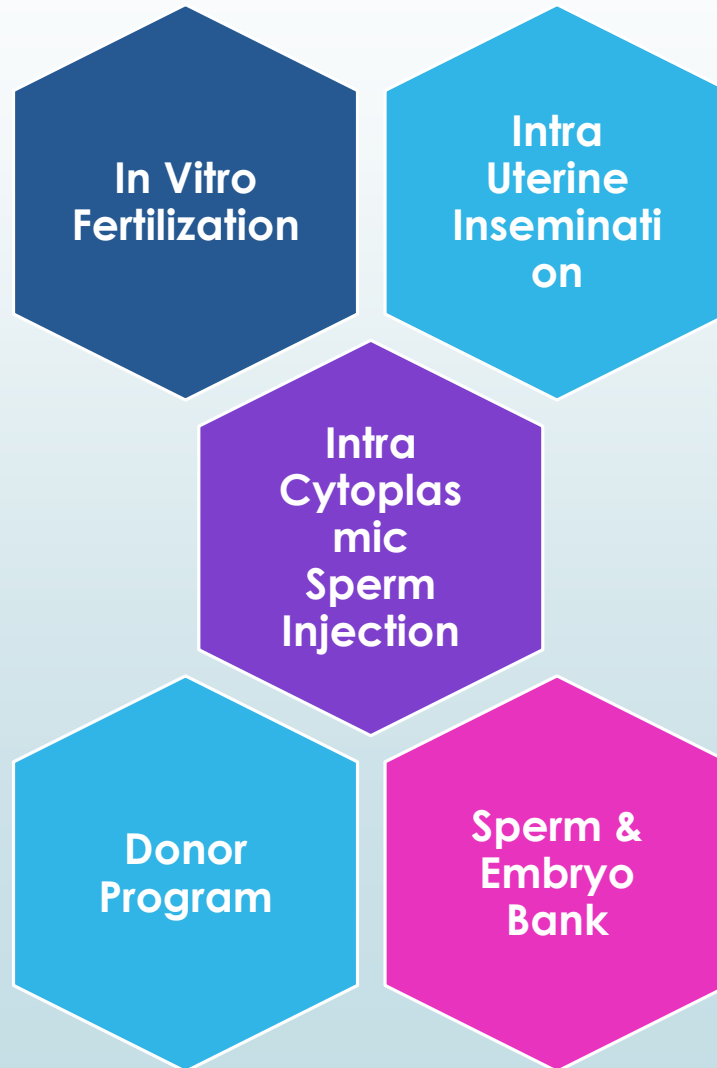
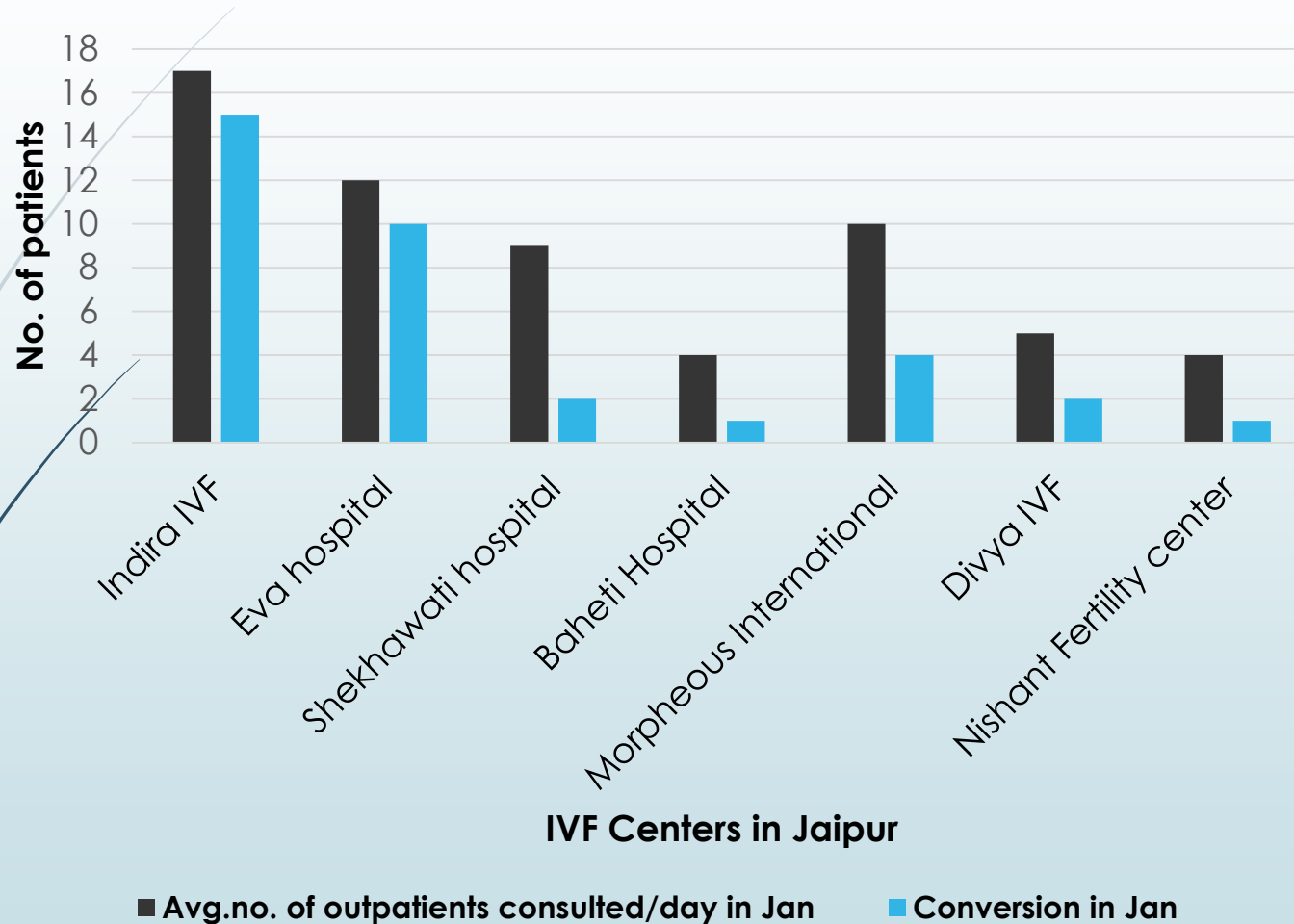
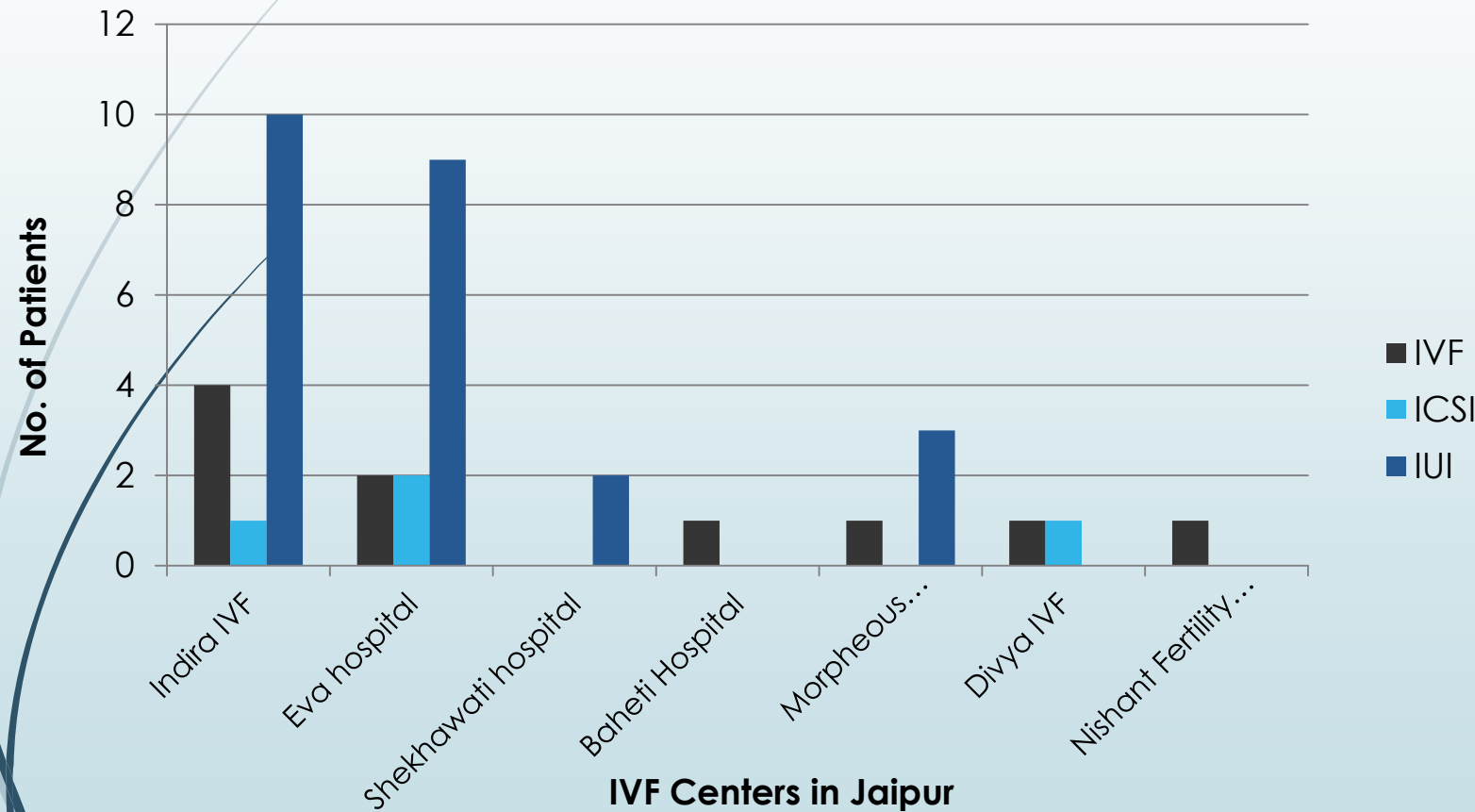


Chart1: No. of patients consulted and conversions done for IVF treatment in the month of Jan,2019



Interpretation: Maximum no. of consultations and conversions Took place in Indira IVF Center i.e. 17 and 15 respectively. Whereas Baheti and Nishant Fertility center experienced the least consultations and conversions

Chart 2: No. of Patients availing different A.R.T. in the various IVF Centers



Interpretation: The no. of patients availing IUI treatment is maximum in Indira IVF i.e. 10. whereas there was no ICSI treatment held in Shekhawati, Morpheous and Nishant Fertility Center in January 2019



Competitor Analysis

Stakeholders

INTERNAL

**Gynecologists
Embryologists
Urologists
Andrologist
Pharmacists
Nurses
Nursing Assistants
Administrative Staff
Catering Staff
Dieticians
Electro Biomedical
Engineer
Paramedics**

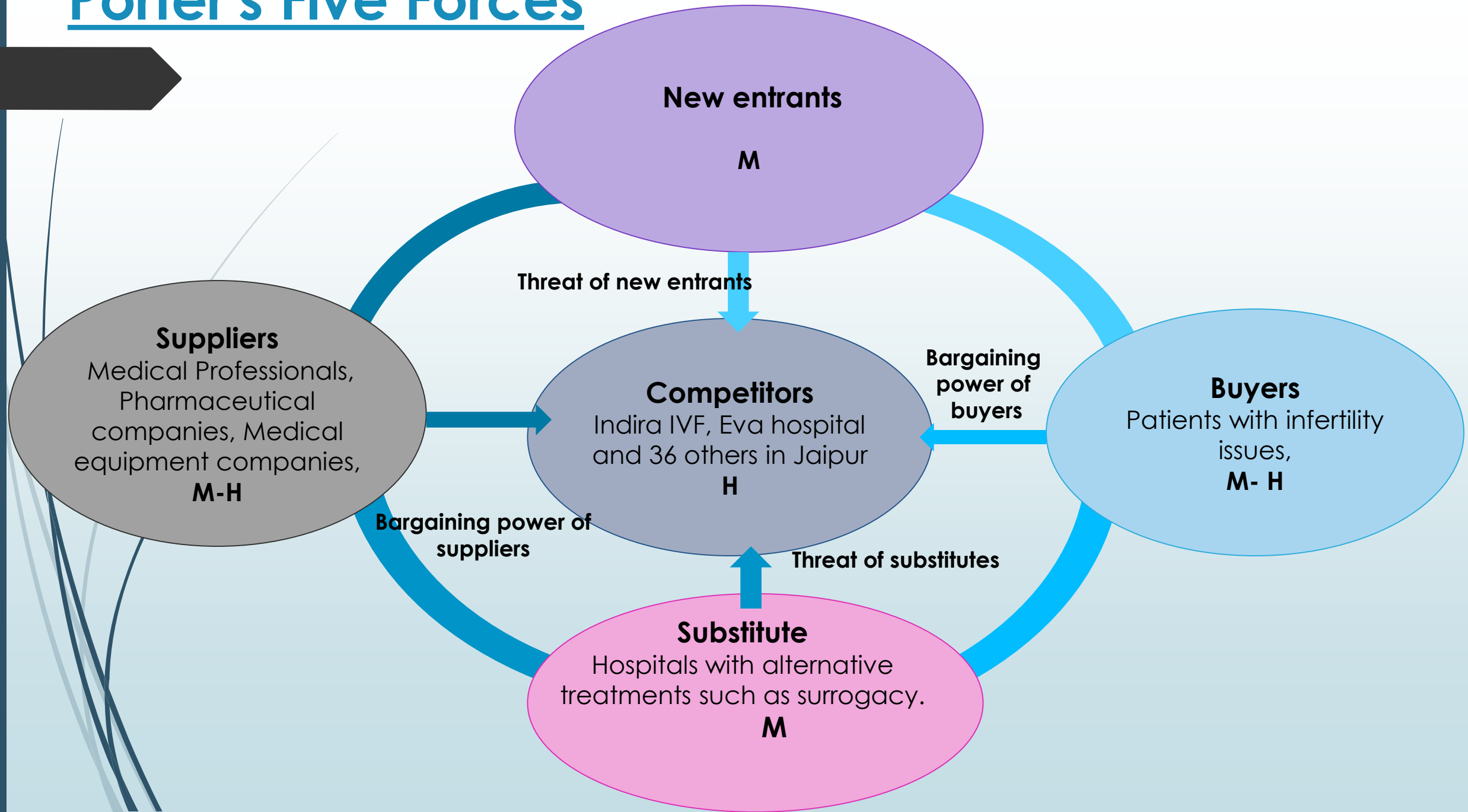
INTERFACE

**CEO of RJ Corp
Top Managers**

EXTERNAL

**Medical Equipment devices Companies
Pharmaceutical Companies
Hospital IVF center planning consultancy
Insurance company for the insurance of equipments
Referral Hospitals
Referral Clinics
Departments of Regulation and Licensing - ICMR
Caregivers and family members
Media
Health Educators
Competitors**

Porter's Five Forces



SWOT analysis

Strength



Cocoon being a established maternity set up thus fulfillment of the internal need for a medical staff is possible within the premises

Installations of Updated medical equipments and pre-existing excellent hospital facilities.

NABH entry level accredited

Hospital holds various health camps and seminars for awareness and education among the masses, further expanding the clientele.



Weakness

Getting the experienced and skilled embryologists will be challenging because of their less availability but high demand

Initial operating cost will be high

Initial apprehensions of the patients as it will be a new entrant in this field



Opportunity

Provide specialized lab services to other physicians

Easily accessible from airport, bus and railway station

Easily accessible from Airport, Railway Station, and Bus stand.

CAGR of India IVF Services Market is 18.2% from 2017-23

Threat



Already established centers- Competitors

Local economy and employment levels of the patients availing services

Initially, challenge in providing treatment at cost lower than the cost charged by competitors.

No insurance cover for IVF treatment.



Objective 2: To determine the Economic
Feasibility

Table 1: Manpower Requirement

Manpower	Shifts			Total Staff
	Morning	Evening	Night	
Embryologist	1	-	-	1
Jr. Embryologist	1	-	-	1
Urologist	1			1
Sonologist	1	-		1
Andrologist	1			1
Anesthetist	1			1
Gynecologist	1	1		2
OT Technician	2	1	1	4
Paramedical Staff	6			6
Nurse	3			3
Lab Technicians	5			5

Table 2: Assumed fixed cost per year

Particulars	Quantity	Assumed Fixed cost per (Rs)
No. of physicians on call plus routine OPD @25000	1 * 12	3,00,000/-
No. of Nurses @15000	3 * 12	540000/-
No. of Lab Technicians@ 20000	5	100000/-
No. of Sonographers@ 80000	1 *12	960000/-
No. of OT technicians @ 30000	4 *12	1440000/-
No. of Embryologists @ 10,000 per day	15 days – 6 months(180 days)	18,00,000/-
No. of Andrologist @ 60,000	1*12	7,20,000/-
Housekeeping Staff @ 5000	3*12	180000/-
office site area @ Rs.263/sq. ft.	10,000 Sq. ft.	26,30,000/-
Total cost per month		

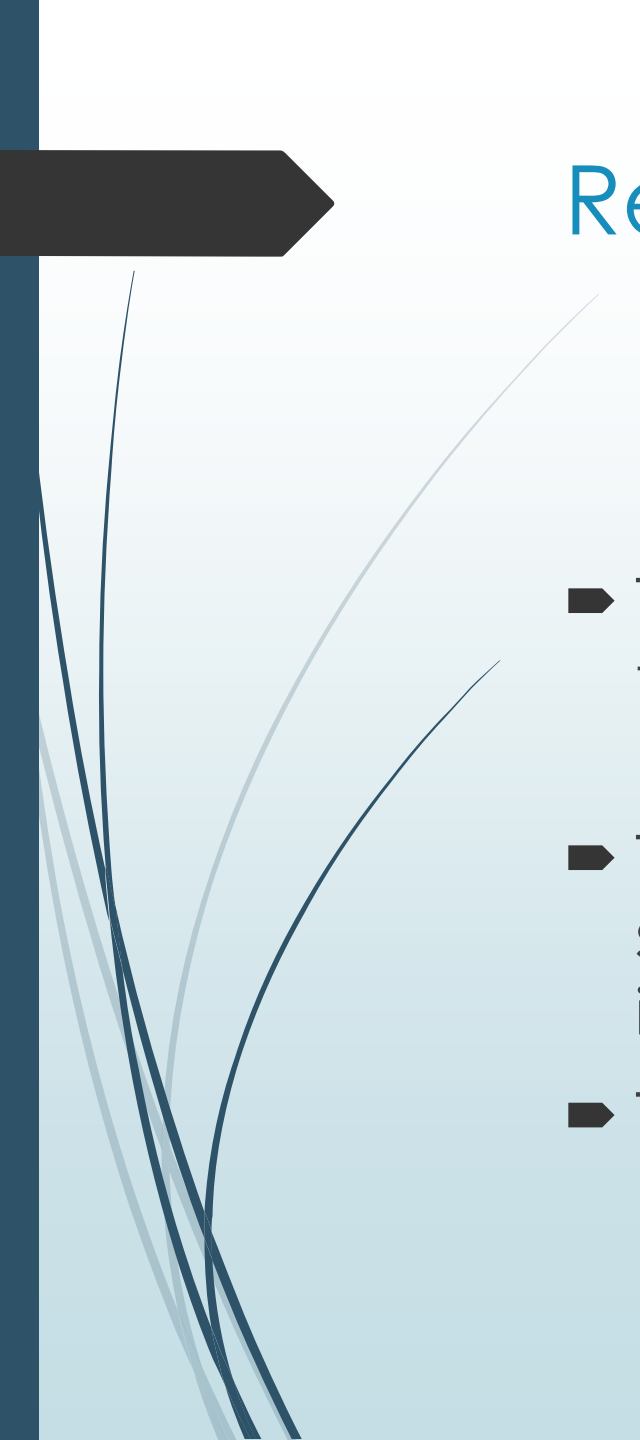


Particulars	Quantity	Assumed Fixed cost in Rs.
Lab Equipments	32	5125500/-
Depreciation@ 10%	-	512550/-
Maintenance@ 4%	-	205020/-
Construction cost		5,00,000/-
Marketing expenses		2,00,000/-
Hospital Consultancy charges		4,00,000/-
Total Cost		69,43,070/- (Excluding Electricity charges)



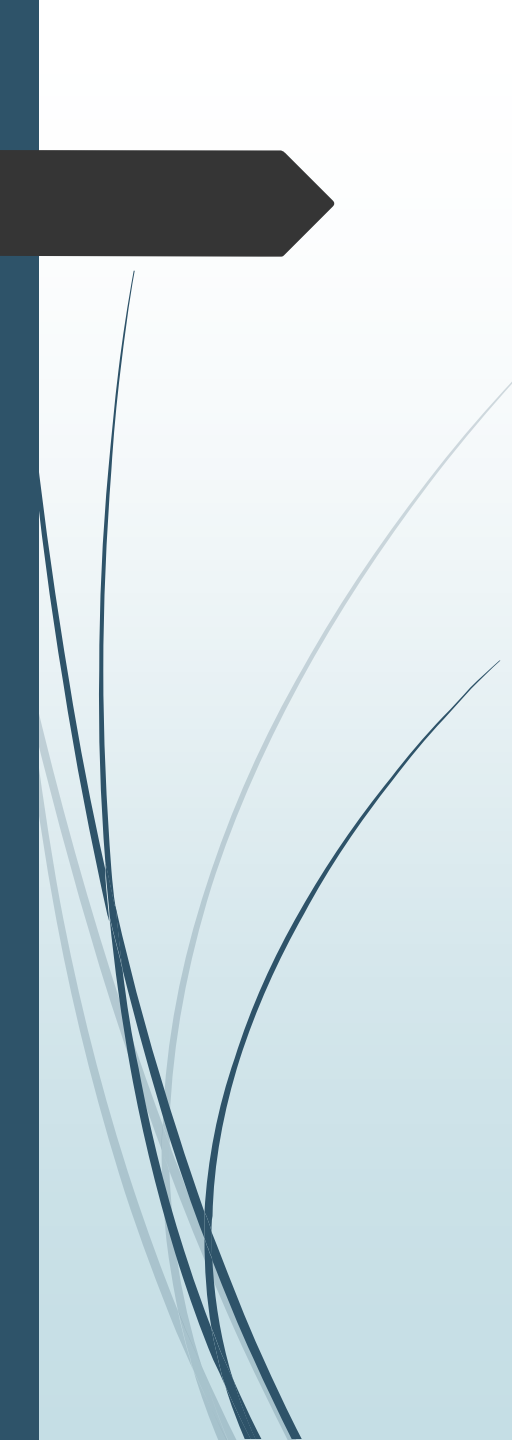
Economic Feasibility

- ▶ [Cash flow statement.xlsx](#)
- ▶ [equipment costing \(1\).xlsx](#)



Results

- There were in total 50 patients who enquired for IVF treatment at Cocoon hospital in the month of December, January and February .
- The IVF Cycles performed in the western region were second highest that is 37 percent which indicates increased need for IVF in future .
- The calculated Net Present Value is Rs. 6482672.



Suggestions

- Based on the Study results which shows the positive NPV of cash flows for four years , it would be feasible and profitable for the organization to come up with the IVF Center and make it operationalize.
- This facility will also help in increasing the market share as it will be providing all the services related to obstetrics and Gynecology under one roof hence meeting the demands of the customers(patients).



Conclusion

The feasibility of having an IVF center is quite high based on the extensive research and findings. As can be seen that the in depth market analysis regarding the competitors and the overall target market tells us about the present day need of having an IVF center which will not only be beneficial for the society based on the increasing demands but will also be running successfully in our hospital.

Research Title	Research Question	Objectives	Methods	Result	Recommendations
Assessment of Market feasibility to set up an IVF center in a maternity and child care hospital	What is the market and economic feasibility to set up an IVF center in Maternity and Child care hospital?	1. To assess the market feasibility of setting an IVF center	Study design: Descriptive Study. Sample Size: 20 percent of IVF centers in Jaipur	1. Rajasthan has major no. of infertile couples as compared to many other states. 2. In West and central region, IVF cycles account to 34% of total cycles performed in India	1. It would be feasible for the organization to come up with the IVF Center and make it operationalize. 2. Conduct health and awareness camps related to infertility.
-	-	2. To assess the Economic Feasibility	Study design: Descriptive study	The Net Present Value is Rs. 6482672	1. Cocoon hospital can proceed to provide IVF facilities as it will be profitable to the organization.



THANK YOU