

**Birla Institute of Technology and Science
Pilani, Hyderabad Campus**

ECON F411: Project Appraisal

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Group 7: Assignment Report

A Report on

**Product Strategy for Birla Institute of
Medical Science**

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Introduction

India is one of the leading countries in the world for medical tourism, with nearly \$6 Billion in value and more than 500,000 patients visiting every year to seek medical care. However, India also lags behind the number of doctors required for its population, with one doctor for every 1,457 people, far behind the WHO-prescribed 1 doctor for every 1,100 people. This brings about the need for medical colleges in India, with good infrastructure and training facilities, to ensure that India is not left behind in the healthcare sector. While existing state and central government medical colleges have been upgraded by increasing the number of MBBS seats, more is needed.

1 BITS, Pilani is a Deemed University in Rajasthan, India. It focuses primarily on higher education and research in engineering and sciences. After expanding to a Dubai campus, it has become the first internationally deemed university, spearheading science, engineering, management, and research with five established campuses and 15 academic departments, spanning engineering, mathematics, sciences, economics, pharmacy, public health, and business administration. In its formative years, the Institute tied up with the Massachusetts Institute of Technology (MIT). It adopted a semester system, modular structure of courses, continuous and internal evaluation, letter grading, and the like. It also created linkages with the industries, which yielded a structured “Practice School” as an integral component of education. BITS Pilani is noted for its unique Dual-Degree program, wherein students are allowed to pursue two degrees, namely a Masters’ Degree in Science and a Bachelor’s Degree in Engineering.

1 Internationally, BITS Pilani was ranked 1001–1200 in the QS World University Rankings for 2020. The same rankings ranked it 175 in Asia in 2020 and 96 among BRICS nations in 2019. It was ranked 401-500 for Life Sciences and 800-1000 overall in the world by the *Times Higher Education World University Rankings* for 2022, 301–350 in Asia, and 351-400 among Emerging Economies in 2020.

In India, BITS Pilani was ranked 27 overall in 2020 by the National Institutional Ranking Framework (NIRF), 15 among universities, 30 in the engineering ranking and 6 in the pharmacy ranking. It was ranked 7th among engineering colleges by *India Today*, sixth by *Outlook India*, and seventh among engineering colleges by *The Week* in 2019. The Department of Management was ranked 10th among private management schools in India by *Outlook India* in 2020.

In this context, BITS Pilani’s decision to build a medical university is both necessary and noble. Its track record of high-quality engineering colleges set a good precedent for this Medical University. This university should not only produce knowledgeable and competent doctors but also help solve India’s problem of a deficit of medical professionals.

Strategy

The overall strategy being adopted by BITS in setting up a medical college is essentially a diversification strategy, wherein a firm enters a new business different from the current business. While education is typically a non-profit industry, the decisions can still be treated as business decisions for the sake of brevity. The specific type of diversification observed here is concentric diversification - getting into a related but new business. While a medical college might be new in some ways, the manner in which it is set up and managed is not fundamentally different from an engineering college. This strategy has its benefits - BITS can leverage its existing resources and competencies, as well as its brand image; secondly, the medical college will benefit from having the "BITS" tag attached to it. The establishment of this Medical College will also open up economies of scope for BITS.

Portfolio Strategy: As per the BCG Matrix, the Medical College is a *Question Mark* - it has a high growth rate potential but currently has a low market share. Hence, it would make sense for BITS to invest in it to increase its market share and potentially convert it into a star.

The Medical College would also act like a *Talent Agency* - It attracts, retains, and develops talent.

Business Level Strategy: The strategy to be followed is *Differentiation*; a differentiation strategy involves offering a product or service that is perceived by customers as distinctive or unique so that they are expected to pay a higher price. Differentiation may be achieved through the quality of education, offering a large range of courses, the BITS brand image, and its reputation. This calls for investments in R&D, state-of-the-art facilities, and marketing skills. BITS must build organizational structures and control systems that nurture creativity and innovation.

Monitoring The Environment

We start by analyzing the current state of several different relevant sectors that ultimately influence and determine the fate of any new business venture.

Economic sector: The state of the economy is that presently, far more investment is needed in Human Resources & Education. Growth rates are lower than expected, which means that any form of investment would be welcome as it would provide employment opportunities and reinvigorate local economies - an overall total positive externality.

Government sector: The medical education regulator, the National Medical Commission (NMC), has also relaxed norms, making it easier for state governments to establish new colleges and increase seats. To overcome the shortage of faculty, the central government has recognized the Diplomate of National Board (DNB) qualification for appointment as faculty. The government has also enhanced the age limit for teachers to 70 years and allows the contractual appointment of retired faculty. Educational institutions are exempt from tax on their income if the institute is solely for educational purposes - they shouldn't be wholly or partially funded by the government.

"The increase in retirement age is acting as a block for young faculties to join the colleges. Now, the government is on a spree to increase UG and PG medical seats to impress citizens. The number of beds for clinical practice and faculties remain the same," said Dr. Prashant Parashar, vice-president of the Jaipur Resident Doctors Association.

Technological sector: We've seen multiple new EdTech startups in recent times in India, and newer forms of engagement like personalized tutoring and gamification of courses have taken hold in newer generations of students. Due to widespread connectivity and access to the internet, remote learning has also gained a lot of popularity and has enabled better and more expansive distance learning courses, distance correspondence courses, and so on. The use of streaming services like Impartus used currently in BITS, will be an added feature for the college as a lot of colleges don't have such facilities. Through the emergence and advancement of communication technology, it is also easier than ever to attract doctors, professors, and other professionals of the highest quality from even outside the country.

Socio-Demographic sector: India currently has one of the most potentially powerful population demographics. The median age of the population is around 28~29 years, and the majority of the population is below 30. There is a need for institutions that can help cater to this young and upcoming generation. The profession of that of a doctor is clearly highly coveted in our society, and that influence will most likely stretch far into the future. In short, there is a large demand for medical education in our society, and it can only be expected to grow.

The trend in the population shows growth at a rate of about 1.7%. The student acceptance rate for the coveted government seats is even lower, at 3.5 percent, with an intake ratio of 28 students per seat. Accordingly, most students planning to pursue an MBBS opt for foreign universities, given their better acceptance ratio and lower fee structure.

Competition sector: As seen during the Russia-Ukraine conflict, a lot of students prefer to study in foreign countries due to the high fee structure and high competition in the field of medical education. Instead of studying in Bihar, students prefer to jump countries and pursue education abroad.

Due to the overabundance of mid-tier and even low-tier colleges which provide subpar education, it is easy for higher-quality education to thrive in such an environment. Most private medical colleges charge around 80 lakhs to 1 crore for a medical degree, and this is a major factor that bars students from enrolling. Young doctors are both not well trained and also in huge debt when they graduate. Very few colleges apart from AIIMS are able to provide a “BITS level” of education to students in the medical sector at a reasonable cost.

Reservations also are a huge hindrance in the field of education. The report stated that colleges set up by the government of India follow an all-India quota for allotment of seats; 15 percent of seats in state government medical colleges are reserved as per the all-India quota, while the remaining 85 percent are allotted on the basis of state quota. In private medical colleges, 25-65 percent of seats are reserved for state quota, while the remaining seats can be allotted by the management. There is no reservation for students from other states.

Growth Story: Medical colleges, seats

Category	2013-14	2022-23	% Increase
Medical colleges	387	612	36
UG seats	51,348	91,927	79
PG seats	31,185	60,202	93

Supplier market: The supply of trained professionals that can work as educators and instructors is a major barrier to setting up an education institution. Poor salaries and no provision for permanent positions are the main reasons for this. One of the reasons for the shortage is due to a “delayed and tiring” recruitment process, said Dr. Abhishek Shankar of AIIMS, Patna. There are enough doctors who would be willing to teach, but job insecurity, low salary, no facility for

contractual appointments, a lengthy hiring process, and an indefinite wait for regular vacancy advertisements that last year is keeping them away.

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All 19 operational All India Institutes of Medical Sciences (AIIMS) are functioning with half the faculty they need – 50.7 percent – and AIIMS Delhi, India's top medical college, is facing a faculty shortage of 36 percent, government data shows. Out of the total 5,340 sanctioned faculty posts, 2,547 are vacant. Three more AIIMS are set to start, but their capacity is doubtful due to present shortages in existing colleges.

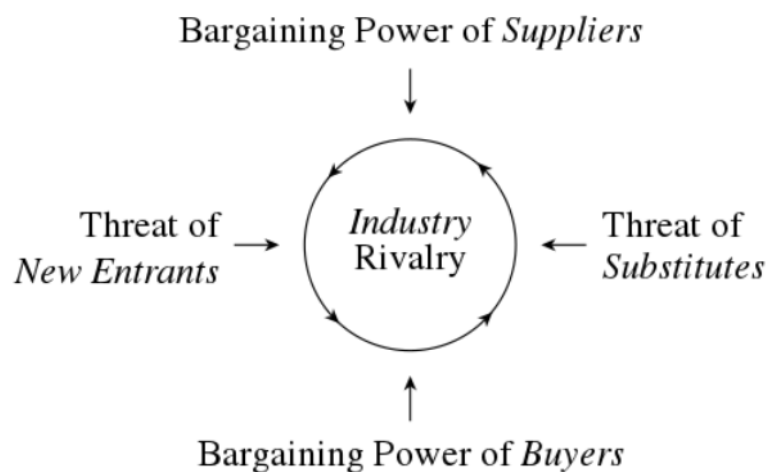
Identifying Investment Opportunities

We will identify investment opportunities in this situation using the following methods of analysis:

- Porter's Five Forces
- Life Cycle Approach
- Strategic Management Process

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Porter's Five Forces Model Analysis



Porter's Five Forces Model is a method of analyzing the operating environment of a business or a potential new business. It identifies and analyzes the effect of five forces on any specific business environment to help determine corporate strategy.

The five forces are as follows:

- Bargaining Power of Suppliers
- Bargaining Power of Buyers
- Threat of Substitutes
- Threat of New Entrants
- Industry Rivalry

We will now individually ascertain the significance of each of these forces in our situation.

The Threat of Substitutes

India as a country is lacking in quality medical institutions. There are nearly 7 lakh students in the country competing for approximately 80000 seats across around 600 institutions. As such, there is high demand for quality medical institutions, and there are not many alternatives. This is further proven by the fact that even with the exorbitantly high fees that private medical institutions tend to charge in India, these seats are still mostly filled every year- because there are simply not many other options for a prospective medical student in our country. Substitute products in the sense of medical courses that satisfy the same outcomes as an MBBS degree are also low in number. Unlike most other professions, becoming a doctor is a highly regulated profession in our country, and you need an MBBS degree to be eligible to practice as a doctor in the country. Comparing this to something like the IT sector, where people can be successful in the industry even without a degree at all, we observe that there is a low threat of substitutes in this industry. People that want to become doctors have no other choice but to enroll in a medical institution. There are very few, if any, substitute products that satisfy the same function, and price ceilings are not significant, as observed by the medical fees in some private medical institutions crossing into the territory of crores of rupees. We conclude that the *Threat of Substitutes is low*.

The Threat of New Entrants

One of the very reasons why there are not many quality medical institutions in our country has to do with the fact that setting up one is extremely expensive. For example, one would require a large amount of land, around 20-25 acres at minimum, highly qualified professionals to serve as professors, and good infrastructure for labs, hostels, classrooms, recreational facilities, and so on. On average, this construction process also tends to take around five years. Furthermore, prior permission from the Central Government is compulsory for starting any new medical college in India. This is subject to its own set of regulations and minimum requirements depending on the size of the intake of students. As a result, there are high barriers against entry into this industry through fixed costs and government regulations, and we conclude that the *Threat of New Entrants is low*.

The Bargaining Power Of Buyers

On a related note to the threat of substitutes, the bargaining power of buyers is also low due to similar factors. Buyers, usually students or parents, in this case, do not have much power to affect the industry and its profits, as switching is difficult due to the lack of choices and high costs, and competition. Another option for students, in this case, is usually foreign education. However, in the case of the medical field in specific, there are several strict regulations about whether or not and where you can practice your medical work depending on which country you

completed your MBBS from. Not only this, but foreign medical education tends to be even more expensive than the already high costs in India, barring a few countries⁶ which are subject to strict regulations anyway, as mentioned previously. We conclude that the *Bargaining Power of Buyers is low*.

The Bargaining Power of Suppliers

In this case, we can consider the suppliers to be the doctors and medical professionals the medical college has to employ in order to teach students. India does not particularly have an abundance of highly qualified medical professionals, and as BITS is attempting to make a medical college rival the best in the country, they cannot compromise on the quality of the staff either. As a result, the “suppliers” in question are few and have high bargaining power owing to the fact⁶ that there are no real substitutes for highly trained medical professionals. We conclude that the *Bargaining Power of Suppliers is high*.

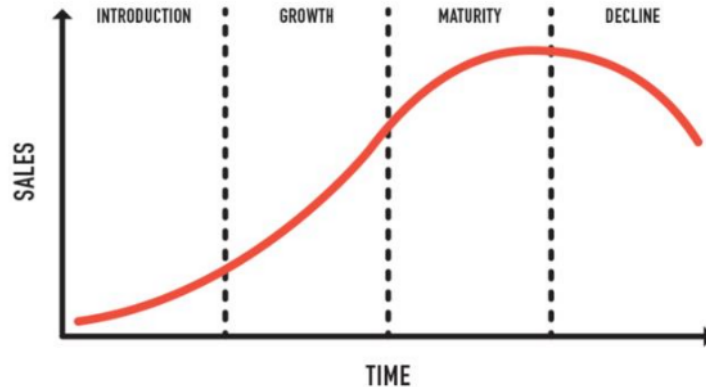
Industry Rivalry

In India, there is an excess of prospective medical students and much fewer medical colleges in comparison. We speculate the industry rivalry to be low-to-medium, owing to the fact that the demand for medical colleges is so high; the colleges do not have to compete with each other as much as other industries because they can be confident of getting enough students to fill up their seats because of the sheer amount of students that aim to be doctors. We conclude that *Industry Rivalry is low*.

In summary, at least four out of the five forces point to the conclusion that BITS Medical College is a good idea.

Life cycle Approach

Many economists believe that most new products go through a life cycle consisting of four cycles. The four stages of the life cycle approach are as follows:



Pioneering stage: Medical colleges are not a new technology or product, but are a very competitive market because of the profit margin compared to other industries. Challenges faced in this stage are competition from already existing medical colleges, lack of funding by the government, establishing campus & infrastructure, and getting licenses & permits. BITS Pilani setting up a new medical college can be difficult but possible with BITS Pilani's reputation, Industry tie-ups, familiarity with governmental procedures, and experience in educational institutions, and it can integrate its existing educational institutes (engineering, sciences, pharmacy, and management) with a medical college for collaboration and research.

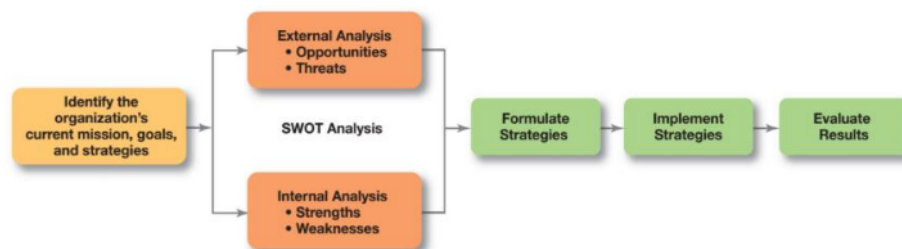
Rapid Growth stage: With the first batch of students passing out and joining hospitals across the world, the reputation of the medical college increases rapidly. Infrastructure and campus approach full development. Being a new medical institute with a good reputation, infrastructure, and facilities, it starts to attract more students. As a result, the intake of students and no of patients in the hospital increases rapidly.

Maturity and Stabilization stage: After a while, possibly a few decades, the intake of students reaches a limit, and no of patients reaches a limit. The medical college reaches its stage of maturity and stability. There won't be much growth hereafter. The profits will be similar to that of the rest of the industry in the economy as a whole. In this stage, the medical college will have large amounts of funds to spare for the research and development of medical science.

Decline Stage: This is the stage where the college loses demand and eventually has to shut down. To extend its market life, the infrastructure and technology of the college have to be continually improved so as to keep up with advances in technology, along with advertising to attract new students. However, if there is no scope for extending the market life, liquidation or selling of the college would be preferred to save it from further ongoing losses.

Initially, the college would be in the Pioneering stage. Proactive & bold decision-making and investment can quickly steer the college into the Maturity & Stability stage, wherein it can make a positive societal impact.

Whole Strategic Management Process



Finally, we analyze the project using the Strategic Management Process method.

First, we identify the organization's mission, goals, and strategies. Then, we will conduct an internal and external analysis of the environment - in other words, a SWOT analysis. Finally, we formulate some strategies.

Mission

BITS' primary mission has been commonly stated to be to "train young men and women able and eager to create and put into action such ideas, methods, techniques and information" (University Overview, 2021). The institution has always strived to bring this to fruition using innovative methods of learning and teaching unheard of elsewhere in the country. We can assume that the new medical institution will also be founded on these unique principles and goals and will play to these strengths.

SWOT Analysis

Internal Analysis

Strengths:

- Unique methods for teaching and learning.
- BITS already has a good reputation throughout the country- high brand value.
- Shared competencies between engineering and medical institutions, especially through the Biology and Pharmaceutical Sciences department.
- Capable of making large investments in high-quality infrastructure and staff.

Weaknesses:

- High fees may discourage many students.
- Lack of experience in the medical industry; the primary focus has always been on the pure sciences and mathematics.
- Not many existing tie-ups with hospitals.

External Analysis

Opportunities:

- There is a lack of high-quality medical colleges in the country.
- The Government has been taking measures to make it easier to establish newer medical institutions.

Threats:

- There tends to be a social bias against private medical institutions in the country due to typically extremely high fees and lower quality of education relative to government institutions that are observed in many “lower tier” private medical colleges.
- It may be difficult to find enough land for development that is big enough for a residential campus.
- As a result, BITS campuses usually tend to be far away from cities, however for a medical college this will be a much bigger problem as it may mean that the college won't receive enough patients to treat and teach students using the help of.
- A high-quality medical college requires doctors and professors of the highest quality, which are not common in India and will demand very high salaries.
- On a related note, cutting-edge medical facilities will also be required, lots of which can only be found outside India and will cost a lot to import.
- Due to both of the aforementioned points, fixed costs will be high, and it will take a longer time to cross the break-even point.

Strategies

After observing the strengths, weaknesses, opportunities and threats in the environment, we will now attempt to formulate a strategy for the project to proceed with.

BITS has a great reputation throughout the country for its unique academic systems that aren't found in most other colleges in our country, and the new medical institution should also carry these traits over and capitalize on it. This will help set it apart from other medical colleges in the country and directly aid in its "differentiation" strategy. The campus should preferably be set around not too far away from a city, as there won't be enough patients to help aid in the teaching otherwise. The engineering campuses have Biology and Pharmaceutical Sciences departments that have lots of shared competencies and knowledge that can be very useful while setting up the medical institution. This also extends to the management teams in the other campuses that already have plenty of experience with BITS' systems and methods. The Aditya Birla company also has a wide network of hospitals under them that can be extremely beneficial for setting up a similar system like the Practice School system observed in the other campuses, for internships and experience- which are extremely valuable for medical students. Although private medical institutions do tend to have high fees, caution must be exercised to not keep it so high to the point where people will prefer studying abroad instead.

Project Rating Index

We have attempted to identify several relevant factors for this specific situation and do a Project Rating Index analysis using the information collected.

Factor	Factor Weight	Rating Point (1-5: 5 - Very Good, 1- Very Bad)	Total Score
Input requirements - capital need and know-how access	0.15	3	0.45
Consistency with government priorities	0.15	3	0.45
Market size - present & future potential	0.25	4	1
Cost structure & profit potential	0.20	3	0.6
Complementary Relationship with other Products	0.10	4	0.4
Stability	0.15	4	0.6

			Rating Index = 3.5
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Input Requirements: The initial investment, capital need and know-how required for an industry like the medical education industry are very high. High-quality infrastructure and world-class professionals are essential if BITS hopes to create a world-class medical institute. As a result, input requirements are high.

Consistency with Government Priorities: The government has been prioritizing and expanding the medical education industry recently. Starting in 2014, it approved the starting of 157 new medical colleges and invested over 17000 crores in the same. We can conclude that BITS starting a new medical college is aligned with the government's priorities.

Size of the market - present and future potential: Medical education will always be in high demand, particularly in the future, as more and more people possibly grow host to a variety of medical conditions. From the student's side, the number of people that aspire to be doctors only rises every year. We can conclude that the size of the market will be stable and may even grow in the future.

The cost structure of the product and its profit potentials: Cost structure in this context refers to the relative proportions of fixed and variable costs in a project. A high-quality medical college project will involve high fixed costs, owing to the expenses required for world-class laboratories and facilities and salaries for skilled medical professionals. Although higher fixed costs are easier to budget, companies with higher variable costs tend to show more consistent profit margins and stability during an economic downturn. Higher fixed costs would also cause higher break-even points, meaning it will take longer to generate profits.

Complementary Relationship with other Products: BITS Medical College would clearly benefit greatly from the brand tag and reputation BITS already possesses due to its high-quality engineering institutions. Similarly, in turn, if the Medical College project proves to be a success, the other BITS institutions would also, in turn, benefit from a better reputation. As a result, there is a complementary relationship between the products.

Stability: Good education will always relatively be in demand, even if the economy is in a general decline. Therefore, it is a safer industry to invest in relative to many others.

The index comes out to be **3.5**, implying that this is a fairly good project to invest in.

Conclusion

In conclusion, BITS setting up a Medical College is a good idea. The social benefits this college would provide are numerous - it would reduce the competition for medical seats (presently, around 18 lakh students compete for around 92000 seats - increasing the number of seats is an obvious solution to this problem); it would fill the vacuum of medical professionals in the country; and finally, it would also provide state-of-the-art facilities for other medical colleges to emulate.

Speaking of the strategy, the Medical College is a Question Mark - it has high growth potential, as well as being a Talent Agency - It attracts, retains, and develops talent. Finally, it has a high scope for differentiation due to the BITS Pilani brand image.

Monitoring the Environment yielded interesting and encouraging results - the Economic, Government, Technological, and Socio-Demographic sectors show positive indicators, whereas the competition and supplier markets show a small degree of uncertainty. Overall, the results show largely positive indicators.

For Identifying Investment Opportunities, ⁵ Porter's Five Forces Analysis showed that ⁶ the Threat of Substitutes is low, the Threat of New Entrants is low, the Bargaining Power of Buyers is low, the Bargaining Power of Suppliers is high, and Industry Rivalry is low. This presents an overall favorable situation for setting up the college. Similarly, the Life Cycle approach showed that the college is still in its Pioneer stage and that it is a good time to invest in it and take it to the Maturity & Stability stage as soon as possible.

⁹ In our SWOT Analysis, we thoroughly analyzed the strengths, weaknesses, opportunities, and threats observed in the internal and external environment and proposed a strategy of differentiation that takes advantage of the wide variety of systems unique to the BITS colleges.

The Project Rating Index was 3.5, also pointing towards the project being a good idea to move forward with.

All these finally indicate that the Medical College is a highly promising project which can cause

revolutionary changes in the Indian education industry, potentially solving several key issues in it.

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