# FINANCIAL VIABILITY OF INVESTMENT PROJECTS DESIGN, VALIDATION AND TECHNOLOGICAL UPGRADING OF A METHOD AND PROTOTYPE MULTIPLEX AMPLIFICATION FOR THE DETECTION OF BACTERIAL PATHOGENS THAT CAUSE VAGINAL INFECTION

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## Abstract

The investigation was at the Autonomous University of Queretaro where the dimensions of analysis are the financial viability of investment projects design, validation and technological upgrading of a method and prototype multiplex amplification for the detection of bacterial pathogens that cause vaginal cervical infection, research question governing research is financially viable is investment in projects design, validation and technological updating of multiple amplification method and prototype for the detection of bacterial pathogens that cause vaginal infection? Which has as independent variable the company interested in the application. Dependent variables Autonomous University of Queretaro, research is developed under the paradigm of quantitative methodology by applying the analytical and correlational research values projected net cash flow five years, IRR (internal rate of return) & Trema (Rate minimum acceptable performance, PayBack (recovery period), phenomenological tool financial analysis of the investment. the expected results are IRR 215%, one Trema 17%, recouping investment on average two years, concluding that it is viable financial investment health projects, implementing a financial procedures manual in technology projects, achieving an efficient relationship between the operative part and decisions.

**Keywords**: Financial viability of investment, projects design, validation and technological

## 1 INTRODUCTION

(STI) sexually transmitted infections constitute a public health problem severe, affecting approximately 30% of the Mexicans between 18 and 30 years of age, data provided by the IMSS (Mexican Institute of Social Security), their supervision and control requires of continuous improvement in diagnosis and surveillance actions, so it is necessary to have methods suitable to allow the accurate of the etiologic agents of STI detection in general , but in particular for those difficult detection by the current methods: Neisseria

gonorrhoeae, Chlamydia trachomatis, Mycoplasma hominis and Ureaplasma urealyticum.

The implementation of a new diagnostic method requires a comprehensive analysis that allows check your utility and should assess different features that ensure that this method will allow the differential of the type of bacteria that causes the recognition disease, that it complies with the standards reported by the relevant regulations, which are fast, affordable and to provide to the laboratory of technological independence. The management of knowledge lies in place the necessary information from the centers of technological development, integrating the knowledge to effectively and efficiently through the tacit knowledge and implicit, to be used in the development and growth of these.Technological development According to Quintanilla classifies it as endogenous and the exogamy, the first is the improvement of processes, reliability, the operation by means of efficient mechanisms exempt from value laden and the second is the use and consumption, sociological, economic, cultural, social and demographic factors. Effect socio-cultural and social constructivism proposal humanistic.

Sexually transmitted infections (STI), remain a priority area for global public health by the high morbidity that is associated with These infections as well as the aftermath of genital infections such as ectopic pregnancy and infertility. The World Organization of the Health Organization (WHO) published in 2014 a manual with the aim of providing a comprehensive guide of standardized procedures to isolate, detect and Diagnose STIS, addressed to microbiologists and medical assistants. The publication is more than timely by which in recent years has registered a number of important advances in diagnostic procedures, in particular with regard to the amplification of Nucleic acids. The review of the main findings in the study of the IST provides a basic understanding of the principles that govern the laboratory tests in the context of the approaches of detection and diagnosis, even acknowledged by who.
The laboratory tests and diagnostic tests at the point of care contribute in large measure to the management and control of STIS to To facilitate the prevention of transmission and its aftermath. The choice of the diagnostic tests ideal is difficult owing to the large number of STIS and the diversity of possible tests for each one of them.

The entrepreneurs who want to invest in this research project, they want to have security to retrieve what invested in money and time, financial viability. There are methodologies for the design and financial viability of investment projects that cover all related topics such as TREMA (Didier, 2016) (rate of performance acceptable minimum), IRR (internal rate of return) and PayBack (eumed, 2016) (recovery time). The financial evaluation allows showing if a project is profitable or not and at the same time is used to determine which variables will affect the future economic performance of the business, with the aim of devising strategies to minimize the risks.

The Autonomous University of Queretaro wanted to know the results of the research how the research question was is financially viable investment in projects of design, validation and technological update of multiple amplification method and prototype for the detection of bacterial pathogens that cause vaginal infection? It is a quantitative research, descriptive and analytical, if hypothesis is if there is a prior analysis of financial projection is then able to make decisions with less risk to invest in this type of projects, the variables are dependent actor who develops the project whereas connoisseur of the materials, times and trained personnel Autonomous University of Queretaro and independent variables companies investors, the research is conducted under the paradigm of the quantitative methodology through the application of the analytical and correlational research projected values net cash flow of five years, the internal rate of return (IRR) Trema and PayBack phenomenological tool financial analysis of the investment. Sample is the case study of the project.

## 2 THEORETICAL FRAMEWORK

Any research project requires financial tools to achieve a balance between the solution of an operating problem and the finances of this, so that the universities can trade, establishing a firm basis for calculating the selling price of this research, integrating each of the fixed costs (Ramirez P. , 2007) , variables, (Sapag, 2007) depreciation, financial expenses, taxes and projected investment, as connoisseurs of the operational part has the first-hand information, this synergy achieved real projects and have timely information efficiently and effectively , fundamental information, on productivity, for the management of economic resources and the essential skills. Looking for an appropriate financing for every educational institution, applying the tools which are then selected for this investigation.

## 3 METHODOLOGY

The initial investment is $3,810,000. - Average interest rate of the different banks Santander, Bancomer, Banorte and Banamex obtaining a mortgage loan at 5 years, fixed costs where identified the wages and salaries of $300,000 and variable costs describe the raw materials to make the test kits $800,000. - an annual total of 10,000 kits, a sales price of $1,000.00, machinery of $500,000 with an annual depreciation of 10% .

The TREMA rate of return acceptable minimum applies to low risk investments is determined in the following way the annual inflation 2015 ends 2.13% (Mexico, 2016), Certificates of the Treasury of the Federation to 28 days 3.72 per cent per annum (TIIE, 2016), growth of the sector in gross domestic product secondary 2015 0.55 per cent per annum (public, 2016) and is considered the percentage increase of the dollar 10.6 per cent per annum (Mexico, exchange rate, 2016) , the sum is 17% that is to not accept the investment of high risk investment projects.

TIR (Ramirez P., 2007) internal rate of return is determined by means of the net cash flows (FNE) (Ramirez P., 2007) (Sapag, 2007)and investment its outcome must be greater than the TREMA (Sapag, 2007) (Ramirez P. , 2007) is able to accept the investment, due to irrigation den research projects.

## 4 RESULTS AND DISCUCION

The expected results are IRR 215%, a Trema 17%, recovering the investment in an average of two years, that is to say that the investment is profitable financially, this is not to say that the only thing, will have to be measured in a multidisciplinary way involving marketing.

## 5 CONCLUSION

The Autonomous University of Queretaro wanted to know the results of the research how the research question was is financially viable investment in projects of design, validation and technological update of multiple amplification method and prototype for the detection of bacterial pathogens that cause vaginal infection? Demonstrating that the financial investment in this type of project was viable, means if the university determined to sell the idea would have a point of reference for the negotiation with interested companies. It was found the assumption if there was a prior analysis of financial projection is then taken into account to carry out the investment in the project caring costs and taking decisions decreasing the risk to invest without obtaining a financial benefit managing to find the balance of operational and financial. The university has trained personnel in their laboratories achieving synergy in each faculty, presenting projects that benefit society Queretana achieving the primary objective the society.

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